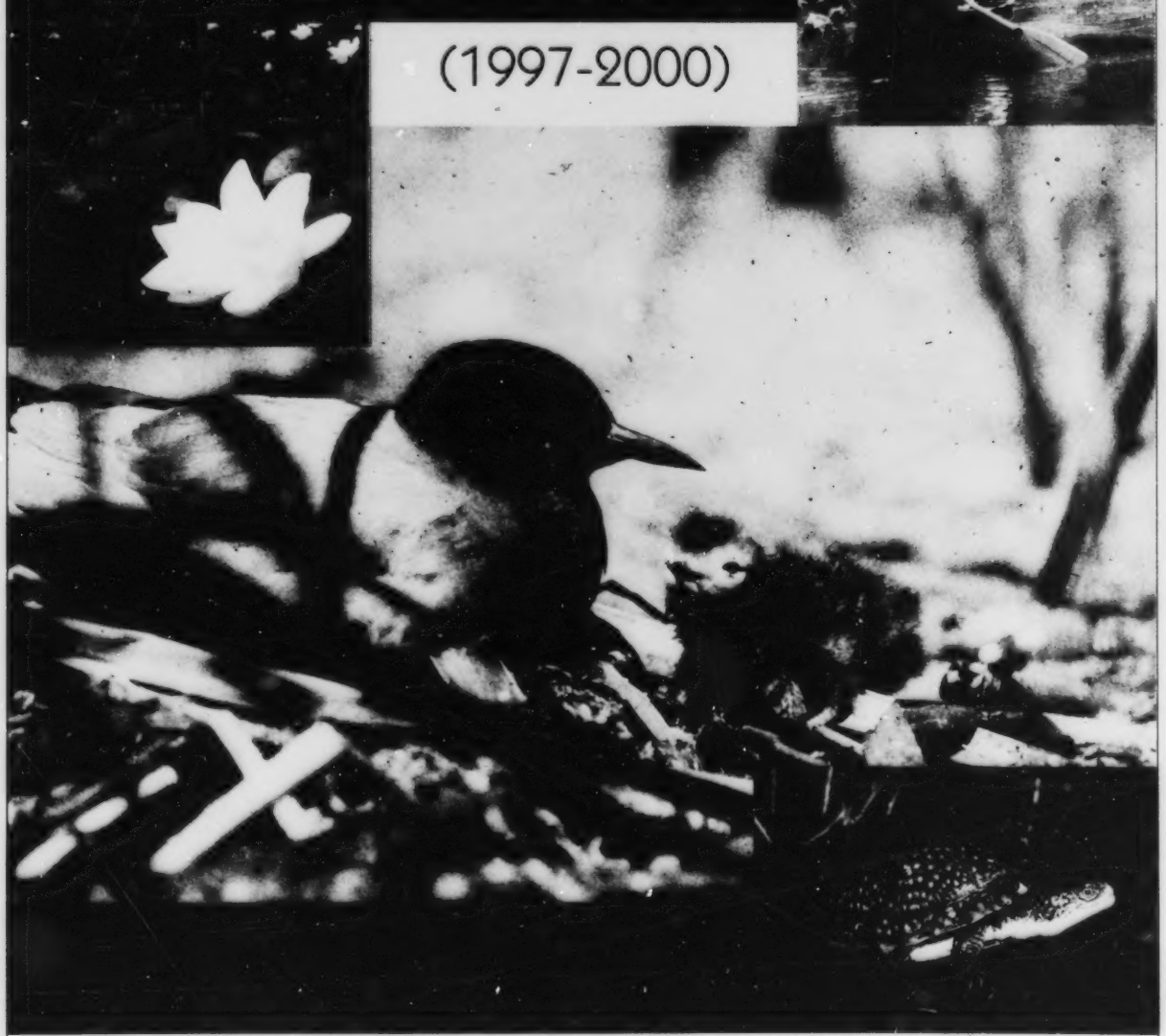
Great Lakes Wetlands Conservation Action Plan

Highlights Report

(1997-2000)



Environment Canada Ontario Region
Environnement Canada Région de l'Ontario

Ontario
Ministry of Natural Resources

Federation of Ontario Naturalists

Nature Conservancy Canada

Great Lakes Wetlands Conservation Action Plan

The Great Lakes Wetlands Conservation Action Plan (GLWCAP) is a cooperative program that involves federal and provincial governments and non-government organizations in efforts to establish a comprehensive wetlands conservation program for Great Lakes wetlands. The Action Plan's goal is to create, reclaim, rehabilitate and protect wetland habitat in the lower Great Lakes basin. The Action Plan adopted eight strategies to work toward this goal:

1. *Increase public awareness and commitment to protecting wetlands*
2. *Develop a wetlands database and an increased understanding of wetland dynamics*
3. *Secure wetlands*
4. *Create, reclaim and rehabilitate wetlands*
5. *Strengthen legislation, policies, agreements and compliance*
6. *Strengthen local planning and commitment to protecting wetlands*
7. *Improve coordination and planning among government and non-governmental organizations*
8. *Evaluate the program*

Specific activities under each of these strategies have been initiated by the organizations involved in the development of the Action Plan (see Our Partners) as well as other organizations and individuals concerned about wetland protection.

Acknowledgments

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Conserving Great Lakes Wetlands

The Great Lakes Wetlands Conservation Action Plan (GLWCAP) brings together a variety of government and non-government partners in an effort to conserve the remaining wetlands in the Great Lakes basin. It complements the goals of the Federal Wetlands Policy (1991) and the Provincial Wetlands Policy (1996) (which is a component of the Provincial Policy Statement), and is the first plan of action produced under the 25-year Strategic Plan for Wetlands of the Great Lakes Basin. Partners take on responsibility for individual projects, milestones and strategies that best complement their strengths and interests.

The Strategic Plan was launched in 1993 following extensive consultation with public and private agencies with an interest in wetlands. More than 30 partners were involved in the development of the plan. These partners work together with individual citizens and landowners to further wetlands conservation. The long-term goal is to protect the area and function of 30,000 hectares of wetlands in the Great Lakes basin by 2020.

The Action Plan was announced in 1994 through the signing of the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) by federal and provincial environment ministers. The COA is a six-year agreement that sets specific targets and time frames for restoring, protecting and sustaining the basin's ecosystems. The GLWCAP is a key delivery mechanism for the COA's goal of rehabilitating and protecting 6,000 hectares of wetland habitat by the year 2000.

The Action Plan is also an important vehicle for implementing wetlands conservation efforts binationally, including international commitments under the Canada-U.S. Great Lakes Water Quality Agreement and the State of the Lakes Ecosystem Conference.

Although the Action Plan's goals and projects are relevant to all wetland types in the basin, the GLWCAP has given priority to the most threatened wetland areas – coastal marshes in the lower Great Lakes basin, between Sarnia and Cornwall. Demonstration areas include Oshawa Second Marsh, the Long Point Wetland Complex and the Rondeau Bay Marshes.

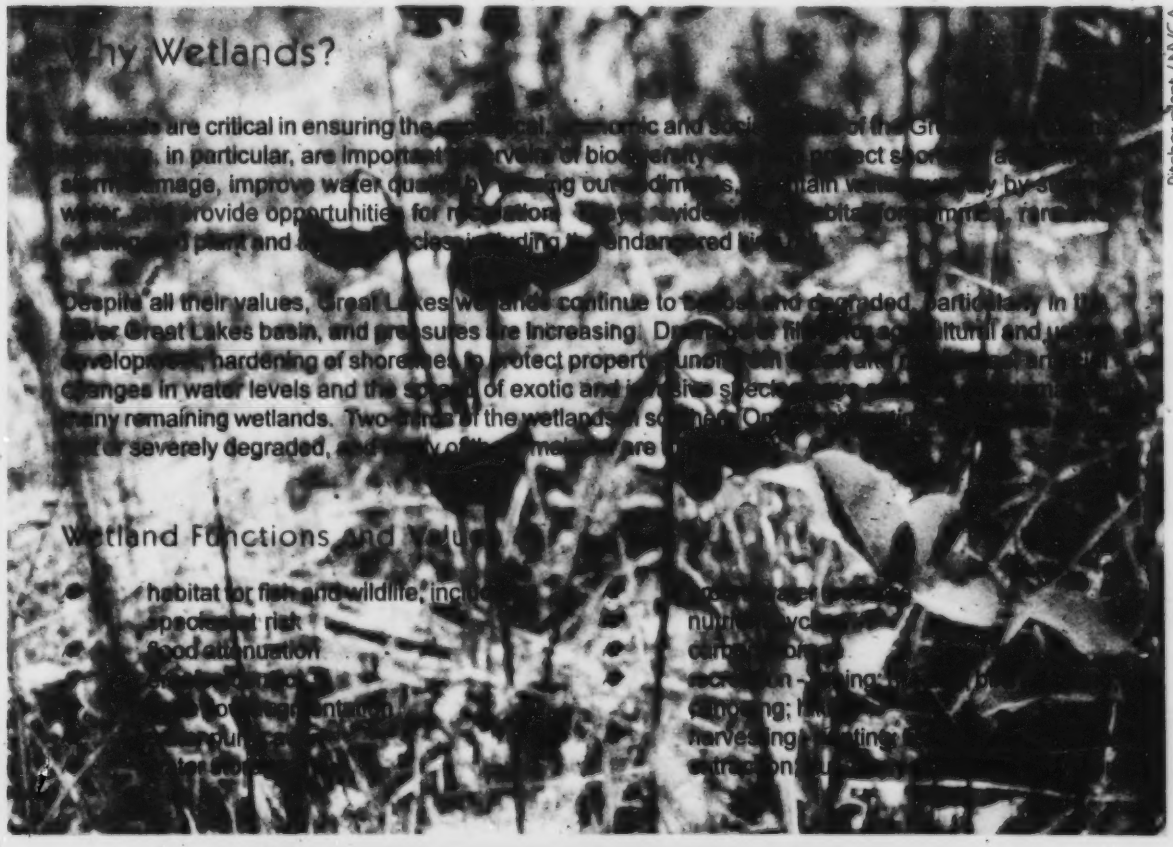
Implementation of the GLWCAP is coordinated by a team of representatives from Environment Canada (Canadian Wildlife Service), the Ontario Ministry of Natural Resources, the Federation of Ontario Naturalists and The Nature Conservancy of Canada. Other major partners include Ducks Unlimited Canada, the Ontario Eastern Habitat Joint Venture (OEHJV) of the North American Waterfowl Management Plan (NAWMP) and the Great Lakes 2000 Cleanup Fund. The implementation team facilitates, monitors, assesses and reports on progress towards the Action Plan's milestones.

G L W C A P

The *Highlights Report* covers an extensive range of Great Lakes wetland conservation initiatives, including those led by the GLWCAP's implementation team members in addition to Environment Canada's Great Lakes 2000 Cleanup Fund, a number of programs under the auspices of Ontario's Eastern Habitat Joint Venture (including most of Ducks Unlimited Canada's activities in the province and Wildlife Habitat Canada and the Ontario Ministry of Natural Resources' Wetland Habitat Fund), and others. The report adds to the summary of activities described in the *First Progress Report* and wraps up the first Action Plan. There are many interesting and useful definitions, documents and activities described in the *First Progress Report* which are not repeated in this document. To refer to the first report, visit *www.cciw.ca/green-lane/wildlife/glwcap/reports/intro.html* or contact Environment Canada (see Contacts).

Planning for a second Action Plan is underway by the GLWCAP's implementation team as well as other partners. A cooperative, consultative approach, similar to that adopted to create the first Action Plan is planned for the development of the next Action Plan. There have been many achievements and changes in wetlands conservation since the first Action Plan was prepared. Combined with the complementary and concurrent strategic planning of partner agencies such as the Ontario Ministry of Natural Resources and Ducks Unlimited Canada, this presents an opportunity to develop a new, comprehensive Action Plan which looks to the future.

Historic wetland losses in southern Ontario range from 60 to 80 per cent, and exceed 95 per cent in many areas.



Pitcher plant / NVCA

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Major accomplishments include:

- ✓ **Recommendation of a suite of coastal wetlands health indicators through the State of the Lakes Ecosystem Conference**
- ✓ **Protection of over 4,000 hectares of wetlands**
- ✓ **Rehabilitation of more than 14,000 hectares of wetlands underway**
- ✓ **Compilation of an Ontario Coastal Wetlands Atlas**
- ✓ **Development of a Provincial Wetlands Strategy**
- ✓ **Initiation of the Natural Legacy 2000 Program**

The Action Plan is also an important vehicle for implementing wetlands conservation efforts binationally, including international commitments under the Canada-U.S. Great Lakes Water Quality Agreement and the State of the Lakes Ecosystem Conference.

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Why Wetlands?

Wetlands are critical in ensuring the **ecological, economic** and **social health** of the **Great Lakes basin. Marshes**, in particular, are important **reservoirs** of **biodiversity that help** protect shoreline areas from **storm damage**, improve water quality by **filtering** out **sediments**, maintain water **quantity** by storing water, and provide opportunities for recreation. They provide critical habitat for common, rare and **endangered** plant and **animal species**, including the endangered king rail.

Despite all their values, Great Lakes wetlands continue to be lost and degraded, particularly in the lower Great Lakes basin, and pressures are increasing. Drainage or filling for agricultural and urban development, hardening of shorelines to protect property, runoff from urban and rural areas, artificial changes in water levels and the spread of exotic and invasive species have reduced and damaged many remaining wetlands. Two-thirds of the wetlands in southern Ontario are estimated to have been lost or severely degraded, and many of the remainder are threatened.

Wetland Functions and Values

- habitat for fish and wildlife, including species at risk
- flood attenuation
- erosion control
- base flow augmentation
- water purification
- water storage
- groundwater recharge
- nutrient cycling
- carbon storage
- recreation - fishing; hunting; bird watching; canoeing; hiking
- harvesting - hunting; fishing; forestry; peat extraction; nut, berry and grain collection

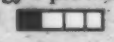
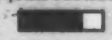
Executive Summary:

Evaluation of Progress Towards Milestones by Strategy

The Great Lakes Wetlands Conservation Action Plan lays out specific steps or milestones that will lead not only to improvements in the physical protection and rehabilitation of wetlands, but to a better informed public, increased coordination of information, improved policy and planning as well as more cooperation between groups interested in wetlands. In 1993, through consultation with many federal departments, provincial ministries and non-government interests, milestones or specific actions were identified under each of the eight long-term strategies. The relative progress under each milestone has been evaluated by the implementation team. Selected activities and case studies are highlighted on pages 7-45.

Completed - a milestone that has been reached; no further work is required.

In Progress - a milestone for which work has begun. The amount of solid area in the bar indicates a relative measure of progress toward reaching the milestone. Initial deadlines may or may not be valid at this time. In addition, Strategy 8 provides a focus to evaluate milestones and the overall Action Plan.

(¼)  (½) (¾) 

Planned (P) - a milestone for which activity has yet to begin, or for which the initial deadline may no longer be valid. Activities on these items are still being planned, and re-visited – the milestones may be rewritten or refined based on emerging priorities and ongoing evaluation for the next Action Plan.

Not Valid (NV) - A milestone that is no longer appropriate given changes that have occurred since the initial writing of the GLWCAP work plan.

Strategy 1: Increase public awareness and commitment to protecting wetlands

Publicize information concerning wetland values, protection, rehabilitation, policies and regulations and encourage involvement by individuals, groups, corporations and industries in all aspects of Great Lakes wetlands protection and rehabilitation.

1. Evaluate and catalogue existing wetlands information, identify gaps and potential audiences.

2. Develop and publish brochures and educational packages.

3. Develop and produce a mobile wetlands display.

 4. Formalize a distribution network and provide existing centres with a catalogue of available wetlands information.

 5. Report on environmental citizenship success stories.

P 6. Produce communication packages targeted for corporations/industry/development interests and include information on opportunities for involvement in wetlands conservation.

Strategy 2: Develop a wetlands database and an increased understanding of wetland dynamics

Develop an accessible, computerized database for coastal Great Lakes wetlands and use this information to produce a readable report for the public outlining wetland targets and trends.

1. Establish an interagency data-management group.

2. Prepare a catalogue of existing coastal wetland databases.

3. Prepare and distribute to the public, information concerning local wetland targets and a regular, standardized, readable report on wetland trends. Possible distribution vehicles include Ontario Ministry of Natural Resources district news briefs, Conservation Authority publications, and newsletters of non-governmental organizations.

 4. Create and maintain an integrated computerized database for the coastal wetlands of the lower Great Lakes.

 5. Establish community-based, volunteer marsh monitoring stations (for marsh birds and amphibians) at project sites in Areas of Concern and other coastal wetlands.

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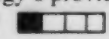
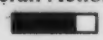
(¼)  (½) (¾) 

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2. Prepare a catalogue of existing coastal wetland databases.

3. Prepare and distribute to the public, information concerning local wetland targets and a regular, standardized, readable report on wetland trends. Possible distribution vehicles include Ontario Ministry of Natural Resources district news briefs, Conservation Authority publications, and newsletters of non-governmental organizations.

4. Create and maintain an integrated computerized database for the coastal wetlands of the lower Great Lakes.

 5. Establish community-based, volunteer marsh monitoring stations (for marsh birds and amphibians) at project sites in Areas of Concern and other coastal wetlands.

Strategy 3: Secure Wetlands

Work plan 1: *Determine priority securement sites and the most effective techniques to secure these sites. Focus existing securement programs on priority sites.*

1. Report on priority sites including description, map and information on agency/group involvement and status of landowner contact.
2. Organize workshop(s) to plan securement strategies.
3. Secure 6,000 hectares of wetland.

NV 4. Report on existing securement programs and incentive techniques in other jurisdictions including an evaluation of their potential application to the Great Lakes basin; survey of landowner response/ preference for different programs/techniques.

Work plan 2: *Undertake wetlands securement at priority sites involving publicly owned lands to demonstrate innovative securement strategies.*

1. Create a report listing all federally owned coastal wetlands of the lower Great Lakes, including a brief site description.
2. Develop a report listing all provincially owned wetlands of the lower Great Lakes, including a brief site description.
3. Develop guidelines for wetland management on government-owned lands (federal and provincial).
4. Undertake securement projects involving land-management agreements.

Strategy 4: Create, reclaim and rehabilitate wetlands

Develop a priority site list and manual of techniques for rehabilitation / creation of coastal Great Lakes wetlands. Undertake projects at priority sites. Pursue opportunities for wetland rehabilitation / creation through existing programs including Remedial Action Plans and the Ontario Eastern Habitat Joint Venture.

1. Create a list of potential wetland rehabilitation / creation sites including a statement of the problem, suggested options and anticipated costs.
2. Conduct a workshop on wetland rehabilitation/creation and produce a manual of techniques.
3. Rehabilitate / create 6,000 hectares of wetland by the year 2001.

NV 4. Establish the amount of wetland adjacent to agricultural land and urban land that is subject to agricultural sediment runoff in the Lake Erie basin; define the causes and severity of the problem.

NV 5. Assemble county reports and maps of priority management areas for reducing sediment loading from agriculture for a pilot project in the Lake Erie basin.

Strategy 5: Strengthen legislation, policies, agreements and compliance

Work plan 1: *Refine and improve compliance with existing regulatory programs.*

1. All coastal wetlands to be designated for conservation in local planning documents by 1996 and zoned by 1999.

NV 2. Report on Ontario Municipal Board decisions and Ontario Ministry of Natural Resources / Conservation Authority development approvals and their consistency with appropriate regulations and wetland policies.

P 3. Report on the effectiveness of the federal *Fisheries Act* for protecting coastal wetlands of the Great Lakes basin, pending federal-provincial agreement on administration of the *Fisheries Act*.

NV 4. Review and compare the effectiveness of wetlands protection in jurisdictions with wetlands legislation versus wetlands policy.

P 5. Review application of federal policies including *Canadian Environmental Assessment Act* (CEAA) and wetland policies.

NV 6. Coastal area Conservation Authorities to map all coastal wetlands by 1997 and register fill and flood lines by 1999.

NV 7. Conduct a workshop involving Conservation Authorities / Ontario Ministry of Natural Resources / municipalities to develop guidelines for review of applications for work in and around wetlands.

P 8. Review the effectiveness of the current provincial wetlands policy and recommend administrative changes and resources required to improve effectiveness of the policy.

P 9. Review and evaluate grants, loans and other financial assistance programs to determine their impact on wetland resources.

P 10. Report on loss of wetlands due to agricultural drainage in a selected watershed.

11. Incorporate wetland conservation and protection initiatives into Remedial Action Plan Stage 2 documents where applicable.

Work plan 2: *Strengthen wetland conservation and protection through ongoing and upcoming regulatory / agreement / policy review opportunities.*

NV 1. Incorporate enhanced wetlands protection considerations contained in the revised *Planning Act*.

2. Report on wetland habitat / sustainable agriculture stewardship program for landowners.

3. Signed Canada-Ontario Agreement includes wetland protection as a new initiative.

Strategy 6: Strengthen local planning and commitment to protecting wetlands

Ensure that all new plans such as resource-management plans, watershed-management plans, local land-use plans, official plans and habitat-management plans incorporate wetland protection and rehabilitation strategies.

1. All coastal Conservation Authorities complete watershed plans / strategies by 1997 and integrated resource-management plans for coastal wetlands by 1998.

P 2. Update Ontario Ministry of Natural Resources' land-use strategies and land-use guidelines for coastal areas.

3. Review existing guidelines for plan input and review process and hold a workshop to finalize standard plan-review guidelines with a list of criteria to be considered by commenting agencies and a list of criteria to be considered by planners.

Strategy 7: Improve coordination and planning among government and non-governmental organizations (NGOs)

Coordinate and integrate all Action Plan protection, rehabilitation and creation initiatives with other ongoing programs that affect Great Lakes wetlands, in particular activities associated with relevant international conventions and agreements.

1. Report on programs, priorities and opportunities for cooperation / coordination under GLWCAP.

P 2. Organize a workshop for an expanded number of binational NGO wetlands consortium members.

3. Evaluate the Strategic Plan for Wetlands of the Great Lakes Basin and develop a framework for a Strategic Plan for Ontario wetlands.

P 4. Coordinate the first Great Lakes wetlands meeting.

Strategy 8: Evaluate the program

Evaluate the Action Plan components, including a careful assessment of individual techniques and their application.

1. Develop a system to evaluate program components including specific techniques and / or strategies as well as target achievement.

2. Review Action Plan by Canada and Ontario as part of the Canada-Ontario Agreement review process.

3. Review program by all partners.

Wetland Conservation Highlights

Since the 1997 progress report, significant progress has been made towards many of the challenging milestones put forward in the Great Lakes Wetlands Conservation Action Plan. Highlights of the milestones that have been achieved under each of the eight strategies follow. These achievements build on those described in the GLWCAP's *First Progress Report* (October, 1997), which can be found at *www.cciw.ca/green-lane/wildlife/glwcap/reports/intro.html.*

STRATEGY 1: Increase Public Awareness and Commitment to Protecting Wetlands

Public awareness of the importance of wetlands, as well as actions to benefit wetlands by individuals and community groups, have been increased through a variety of outreach materials and activities.

Great Lakes Wetlands Publications

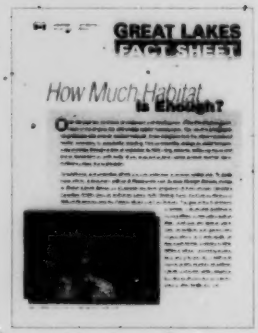
**Copies of the following documents are available from each of the respective organization (see Contacts).*

Environment Canada

Environment Canada has produced a number of fact sheets, brochures and reports which are available in hard copy and on the Internet from the Canadian Wildlife Service Home page on the Green Lane (www.cciw.ca/green-lane/wildlife/). The titles include:

- *Restoring Habitat - An Investment for Life*
- *A Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern*
- *How Much Habitat is Enough?*
- *Stormwater Ponds of Southern Ontario – Are they a risk to wildlife?*
- *Wetlands and Economics: An Annotated Review of the Literature, 1988-1998*

Environment Canada's Green Lane also hosts the GLWCAP web page *(www.cciw.ca/green-lane/wildlife/glwcap/)* and a compendium of Great Lakes 2000 Cleanup Fund habitat restoration projects *(www.cciw.ca/green-lane/cuf/cat-habitat.html)*. A virtual wetland tour is under construction for the GLWCAP web page that will provide information on wetland values, functions and types. It will also profile projects described in this report. Detailed descriptions of wetland habitats and species, video clips, sound waves, games and photographs will make the site more educational and interactive.



Ontario Ministry of Natural Resources

The Ontario Ministry of Natural Resources has published a number of documents highlighting wetland conservation issues in addition to an atlas of Great Lakes coastal wetlands.

- *Ontario Coastal Wetlands Atlas, a publication jointly produced by the Ontario Ministry of Natural Resources and Environment Canada (limited quantities available early in 2000)*
- *Watershed Report Card, Silver Level (new wetland assessment module)*

Federation of Ontario Naturalists

The Federation of Ontario Naturalists has recently produced the proceedings of a workshop as well as fact sheets and other documents which encourage both individuals and naturalists clubs to rehabilitate and protect wetlands and other habitats.

- *Remote Sensing and Wetlands: Workshop Proceedings and Analysis*
- *Protecting Nature Close to Home: A Guide to Municipal Environmental Advisory Committees in Ontario*
- *Wetland Restoration and Rehabilitation*
- *Habitat Creation with Native Plants*
- *A Citizen's Guide to Protecting Wetlands and Woodlands (revised edition available in mid-2000)*

Ducks Unlimited Canada

Ducks Unlimited Canada has a number of documents available to promote the importance of wetlands conservation as well as specific guidance for those interested in rehabilitating wetlands.

- *Temperate Wetlands Restoration Guidelines, a publication jointly written and produced by Ducks Unlimited Canada, Environment Canada, the Ontario Ministry of Natural Resources, and Trent University with additional financial support from the Ontario Eastern Habitat Joint Venture partners (OEHJV), is available at a cost of $25.00.*
- *Rural Wetlands in Ontario: A guide for landowners*
- *Ontario Land CARE Project Profiles (e.g., Buffer strips, Exclusion fencing, Flushing bars)*

Awareness of the importance of wetlands promotes conservation action.

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Fax: (416) 362-6161
Email: info@micromedia.on.ca

Wetland Habitat Fund (an OEHJV program of Wildlife Habitat Canada and OMNR)

The Wetland Habitat Fund has a pamphlet which provides a general overview of the Fund and contact information as well as an excellent workbook to develop a comprehensive management plan for a wetland/upland property.

- ***Wetland Habitat Fund - Financial assistance for private landowners***
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Ontario Soil & Crop Improvement Association

This association publishes a number of products to assist rural land owners to manage their properties.

- ***Managing Agricultural Drains to Accommodate Wildlife***

North American Wetlands Conservation Council (Canada)

The Council has a number of publications on wetland management issues.

- ***Wetland Compensation and Mitigation***

Wetland Information on the Internet

A number of web sites contain or specialize in wetlands information and conservation efforts in the Great Lakes basin. Some places to start your search include:

Canada

Great Lakes Wetlands Conservation Action Plan
www.ecoinc.ca/green-lane/wildlife/glwcap/

North American Waterfowl Management Plan
www.cws-scf.ec.gc.ca/nawmp/nawmp_e.html

Great Lakes 2000 Cleanup Fund
www.cciw.ca/green-lane/cuf/intro.html

Ontario Natural Heritage Information Centre
www.mnr.gov.on.ca/mnr/nhic/nhic.html

Ducks Unlimited Canada
www.ducks.ca/

Waterloo Research Centre
www.fes.uwaterloo.ca/Research/Wetlands/

Wet Net
www.wetlands.ca/

United States

Tip of the Mitt Watershed Council
www.nature.org/ipmwc/index.htm

U.S. EPA - Great Lakes National Program Office
www.epa.gov/glnpo/

U.S. EPA Office of Water - wetland fact sheets
www.epa.gov/OWOW/facts/contents.html

Society for Ecological Restoration
www.ser.org/

U.S. FWS - National Wetland Inventory
www.nwi.fws.gov/

Society of Wetland Scientists
www.sws.org

American lotus / J. Mitchell

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www.mnr.gov.on.ca/mnr/nhic/nhic.html

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www.ducks.ca/

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www.wetlands.ca/

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www.nature.org/tomwc/index.htm

U.S. EPA - Great Lakes National Program Office
www.epa.gov/glnpo/

U.S. EPA Office of Water - wetland fact sheets
www.epa.gov.OWOW/facts/contents.html

Society for Ecological Restoration
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Society of Wetland Scientists
www.sws.org

American lotus / J. Mitchell

Activities under this strategy are gaining momentum. It is hoped that this strategy will become an area of greater focus for many partners under the next Action Plan.

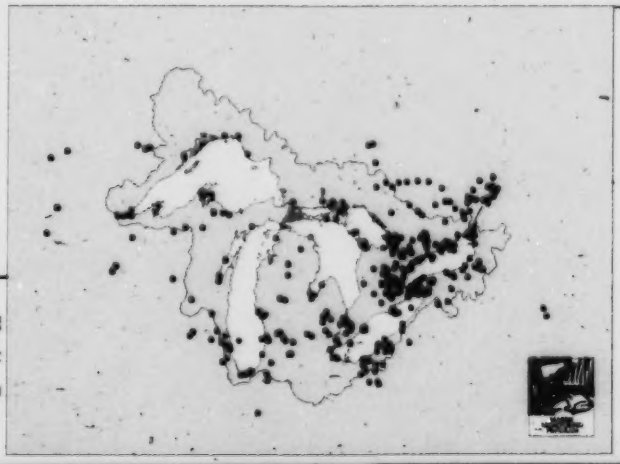
Marsh Monitoring Program

Now in its fifth year, the Marsh Monitoring Program (MMP) is generating increasingly interesting and useful information about marsh bird and amphibian populations in the coastal and inland marshes of the Great Lakes basin. Since 1995, over 500 volunteers from across Ontario and the Great Lakes states have registered to survey calling amphibians, marsh birds and their habitats in the Great Lakes basin. Participants vary widely in both age and skill level, but all are interested in the conservation of local wetland habitats and their species.

The program's objectives are to: monitor marsh birds and amphibians at large spatial and temporal scales; contribute to the understanding of habitat associations of marsh birds and amphibians; and help in the assessment of recovery in Areas of Concern. Volunteers apply standardized methods to conduct bird surveys twice, and amphibian surveys three times annually, at permanent stations along wetland edges. They also report on the vegetation and other habitat characteristics at each station.

The program has attracted the attention of a variety of audiences from naturalists clubs to governments across the continent interested in accessing the data and/or adopting the approach for their area. The MMP's data will be used to report on two of the indicators of coastal wetland health for the State of the Lakes Ecosystem Conference (SOLEC) 2000 – wetland-dependent bird diversity and abundance, and amphbian diversity and abundance (see SOLEC Indicator p. 13). The MMP provides a large-scale, binational, and volunteer-based foundation for this monitoring. With the continued cooperation of agencies, non-government organizations and citizen naturalists from across the basin, additional years of data will strengthen the contribution of these indicators to assessments of Great Lakes wetlands. Other new applications of the data are being investigated, including a predictive model for marsh bird species and their habitats.

The MMP is a long-term monitoring program delivered by Bird Studies Canada in cooperation with Environment Canada (Canadian Wildlife Service and Great Lakes 2000 Cleanup Fund), the U.S. Great Lakes Protection Fund, and the U.S. Environmental Protection Agency. For more information, contact Bird Studies Canada (see Contacts) or visit: *www.bsc-eoc.org*.



Marsh Monitoring Program Routes in the Great Lakes Basin

Wetlands, particularly marshes, are important reservoirs of biodiversity.

Temperate Wetlands Restoration Training Course

The fourth successful Temperate Wetlands Restoration Training Course was held during the week of August 22, 1999. The annual course continues to be refined and delivered by a consortium of agencies including Environment Canada, the Ontario Ministry of Natural Resources, Trent University and Ducks Unlimited Canada. Over 90 wetland managers have now been through the intensive field training course, which continues to receive enthusiastic responses from its students. The course employs seven wetland rehabilitation case studies in southern Ontario, including marsh, swamp and fen habitats in urban, rural and agricultural settings.

Students at Onondaga Farm field site / D. Mansell

Temperate Wetland Restoration Guidelines were produced based on materials developed for the training course, a 1995 workshop on the best available wetland restoration science (see Wetlands Special Issue p. 32), and an extensive review of the "grey" and published scientific literature (combined with practical experience in wetland restoration). The guidelines are applicable to a wide range of wetland conservation activities including securement, rehabilitation, enhancement, creation and maintenance. They do not advocate any particular set of values, and allow the user to set his/her own goals. They will be useful to regulators and practitioners of wetland restoration science, both now and in the future.

These guidelines are the foundation of the training material for the course. They are available at a cost of $25.00 from Ducks Unlimited Canada (see Contacts). All proceeds from the sale of the guidelines are being re-invested in wetlands restoration projects.

The Ontario Coastal Wetland Atlas and database will be used to develop habitat management strategies and focus resources for conservation programs.

State of the Lakes Ecosystem Conference (SOLEC)

SOLEC is a Great Lakes conference held every other year by the governments of Canada and the U.S.A. SOLEC 1996 provided an overview of the status and trends in nearshore wetlands along the Canadian and U.S. shores of the Great Lakes. The focus of SOLEC 1998 was on indicators of Great Lakes ecosystem health. Coastal wetlands were one of the four core ecosystem components, along with the nearshore terrestrial environment, open waters and nearshore waters. A suite of 13 indicators of coastal wetland health was recommended:

- *Coastal Wetland Invertebrate Community Health*
- *Coastal Wetland Fish Community Health*
- *Deformities/Eroded Fins/Lesions/Tumours (DELT) in Coastal Wetland Fish*
- *Amphibian Diversity and Abundance*
- *Wetland-Dependent Bird Diversity and Abundance*
- *Coastal Wetland Area by Type*
- *Gain in Restored Coastal Wetland Area by Type*
- *Presence, Abundance and Expansion of Invasive Plants*
- *Habitat Adjacent to Coastal Wetlands*
- *Contaminants in Snapping Turtle Eggs*
- *Sediment Flowing into Coastal Wetlands*
- *Nitrates and Total Phosphorus into Coastal Wetlands*
- *Water Level Fluctuations*

For more information, visit the SOLEC web site at *www.cciw.ca/solec/intro.html*.

Research and data gathering is underway to report on five of these indicators at the SOLEC 2000 conference (October 17 - 19, 2000 in Hamilton, Ontario). The five indicators are: 1) wetland-dependent bird diversity and abundance, 2) amphibian diversity and abundance, 3) sediment flowing into coastal wetlands, 4) nitrates and total phosphorus into coastal wetlands, and 5) wetland area.

SOLEC 1998 also focused on Biodiversity Investment Areas (BIAs), a concept intended to recognize the importance of protecting the rich biological diversity of the Great Lakes ecosystem and the many kinds of habitat needed to support this diversity. BIAs are meant to provide locally-based recognition and support for areas of key biological importance, whether degraded or relatively undisturbed. On the landscape, they are broad coastal reaches that contain clusters of exceptional biodiversity values. For SOLEC 1998, the Nearshore Terrestrial BIAs (first discussed at SOLEC 1996) were further refined, and the BIA concept was expanded to include coastal wetlands and open water areas of the lake.

For coastal wetlands, SOLEC stopped short of labeling areas as BIAs. Rather, eco-reaches were identified. These areas support significant wetland types that are ecologically distinct and known to be exceptionally important habitat for a large number of fish and bird species. It was recommended that a Geographic-Information-System-based inventory of all coastal wetlands be maintained and a consistent terminology for classifying and describing coastal wetlands on both sides of the border be developed.

M121

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THE PAGES WHICH FOLLOW HAVE BEEN FILMED TWICE IN ORDER TO OBTAIN THE BEST REPRODUCTIVE QUALITY

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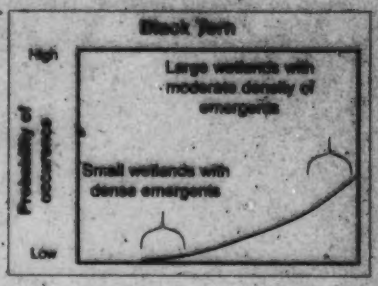
SOLEC Indicator Case Study - Wetland-Dependent Bird Diversity and Abundance



Birds are among the most visible and diverse groups of wildlife in Great Lakes coastal wetlands. Because breeding wetland birds require an appropriate mix and density of vegetation, sufficient and safe food resources, and freedom from predation and other disturbances, their presence and abundance provides information that integrates the physical, chemical and biological status of their habitats, making them a valuable indicator. The recent growth of nature-oriented recreation, particularly birdwatching, has helped develop strong natural history and identification skills in a large proportion of the basin's citizens. The connections between wetland functions and breeding birds, and the potential for involving skilled citizens in monitoring, present an important opportunity to gather information on the health of coastal Great Lakes wetlands. Marsh bird surveys have been established broadly throughout the basin (Canada and U.S.A.) by the Marsh Monitoring Program (MMP).

Patterns in the species composition and numbers of breeding wetland birds may reflect changes in the condition of breeding habitats. Five years of MMP monitoring data are expected to provide sufficient resolution to identify trends in numbers of marsh nesting birds, including those in the table. When combined with an analysis of habitat characteristics such as those summarized in the figure, trends in species abundance and diversity can contribute to an assessment of the ability of Great Lakes coastal wetlands to support birds and other wetland-dependent wildlife. When analyzed at various spatial scales, MMP data can help assess the status of marsh birds and their habitats across regions, individual lake basins or over the entire Great Lakes basin. The use of this indicator to assess Great Lakes wetlands health will be illustrated at SOLEC 2000 with a summary of trends in marsh bird abundance and species composition.

Providing the habitat quality and quantity necessary to sustain breeding populations of wetland-dependent birds across their historical range is an important target for efforts to conserve and restore Great Lakes coastal wetlands. Monitoring the diversity and abundance of marsh bird communities is critical to achieving this objective and makes a strong contribution to the overall assessment of Great Lakes wetland health.

Black Tern	4%
Marsh Wren	3%
Virginia Rail	3%
Number of marsh nesting species	1%

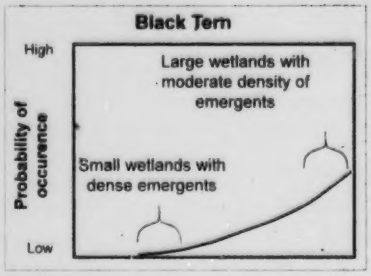
**With 100 MMP routes surveyed for five years.*

Wetland Inventory and Research Network (WIRE Net)

WIRE Net is a network which provides a scientific basis for the restoration and conservation of Great Lakes wetlands. The objective is to facilitate the free exchange of wetland research results between researchers and practitioners and to create and maintain a widely accessible database of information for research and education on Canadian and U.S. wetlands in the Great Lakes basin.

The wetland inventory component of the network was developed with ArcView 3.0 Geographic Information System (GIS) software, by directly deriving Great Lakes coastal wetland data from a digital GIS-based version of the Environment Canada, 1993 Environmental Sensitivity Atlases. The wetland polygon boundaries in the Atlases were digitized and provided by various agencies, including the Ontario Ministry of Natural Resources (OMNR). The inventory was then supplemented with wetland centroids and attribute data from the OMNR Natural Heritage Information Centre and OMNR's wetland evaluation data sheets. Information for 100 U.S. wetlands was obtained from the Michigan Natural Features Inventory and has been recently added to the database, which is housed at McMaster University in Hamilton, Ontario. In addition, the database continues to be enriched with fish habitat information for both U.S. and Canadian wetlands in the basin. Additional funding is being sought to continue the work of WIRE Net, including updating the web site with recent additions to the database. For more information, visit: *www.cciw.ca/glimr/wirenet/#L*.

SOLEC Indicator Case Study - Wetland-Dependent Bird Diversity and Abundance



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Examples of Species/Group	Detectable annual change in numbers (projected)*
Black Tern	4%
Marsh Wren	3%
Virginia Rail	3%
Number of marsh nesting species	1%

**With 700 MMP routes surveyed for five years.*

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Remote Sensing and Wetlands

The proceedings of a 1996 Remote Sensing Workshop are now available from the Federation of Ontario Naturalists (see Contacts). The one-day workshop co-sponsored by the Ontario Ministry of Natural Resources, Federation of Ontario Naturalists and Environment Canada was convened to consider how remote sensing can provide a means to monitor changes in wetland location and extent in order to measure the success of wetlands conservation efforts.

The proceedings summarize the characteristics, opportunities and limitations of each remote sensing approach as it applies to wetland monitoring. The report also identifies information needs such as: the cost of each method relative to its usefulness (e.g., accuracy, consistency, reproducibility); and completion and access to OMNR's latest air-photo coverage in both digital and stereo-contact forms. The proceedings also identify "What Next?" and suggest three projects: a) completing remote-sensing background work, b) investigating the accuracy of various monitoring approaches, and c) testing an approach to landscape and wetland monitoring.

In 1999, the University of Waterloo initiated a study to address each of the three project suggestions. The goal is to assess the use of high-resolution remotely sensed imagery for wetland mapping and monitoring change in selected inland and coastal wetland complexes in southern Ontario. Project partners include CRESTech, Ducks Unlimited Canada, Environment Canada (Canadian Wildlife Service and Meteorological Service of Canada), and the Grand River Conservation Authority. The partners are working to develop uniform, consistent and readily applied procedures for detailed mapping and monitoring of wetlands. High-resolution data, such as IKONOS, as well as imagery acquired from the Compact Airborne Spectrographic Imager (CASI) show potential for wetlands applications. It is anticipated that this project will provide an improved method of mapping and monitoring wetland ecosystems within the Great Lakes basin at the level of detail necessary for management purposes.

Long Point Added to Trends Through Time Database - Others to Follow

In an effort to better understand the effects of natural stressors on wetlands, vegetation communities and adjacent land-uses have been mapped for seven coastal wetlands (Lake St. Clair marshes, Big Creek-Holiday Beach, Rondeau Bay North Shore, Turkey Point, Oshawa Second Marsh, Presqu'ile Park Marsh, and Dunnville Marsh) for seven different years between 1934 and 1995. Air photo interpretation is used by Environment Canada (Canadian Wildlife Service) and Snell and Cecile Environmental Research to map these features on the 1:10,000 Ontario Base Map. The wetlands at Long Point have been mapped and added to the data set through a recent collaborative effort among Environment Canada (Meteorological Service of Canada), the Long Point Waterfowl and Wetlands Research Fund and the University of Waterloo. Additional coastal wetlands on Lakes Superior and Huron and the connecting channels, as well as inland wetlands, will be added to allow basinwide monitoring.

The vegetation communities mapped include: open water, submergents, floating or very sparse emergents, short moderate dense emergents, tall dense emergents, meadow, trees and shrubs, and mudflat. Fourteen land-use classes are mapped.

The maps for each year have been digitized with the exception of Dunnville and Long Point (which is currently being mapped and digitized) to permit analyses of trends in vegetation communities, diversity and water level response using Geographic Information Systems.

The Trends Through Time database has many other applications including: providing an historic baseline for rehabilitation projects, guiding the development of indicators for measuring the effects of wetland programs and policies, tracking changes in adjacent land-use, and tracking the change in distribution of phragmites and invasive plant species in the Long Point marsh.

For more information, please contact Environment Canada - London (see Contacts).

Ontario Coastal Wetland Atlas

Information on wetlands is required by many national, provincial and local government agencies, non-government agencies and individuals interested in wetland conservation and restoration. The need for a comprehensive digital database for wetlands in the Great Lakes and Ontario has been identified by a number of individuals, groups and agencies.

To meet this need a digital atlas of Ontario Great Lakes coastal wetlands was developed by the Ontario Ministry of Natural Resources and Environment Canada (Canadian Wildlife Service). The Ontario Coastal Wetland Atlas, which will be released in the spring of 2000, provides a current, spatially referenced map and database of Ontario coastal wetlands in the Great Lakes basin. It updates and consolidates information on Great Lakes coastal wetlands from a variety of sources including OMNR wetland evaluations, Environment Canada's Environmental Sensitivity Atlases, OMNR's Natural Areas Database and other site specific studies.

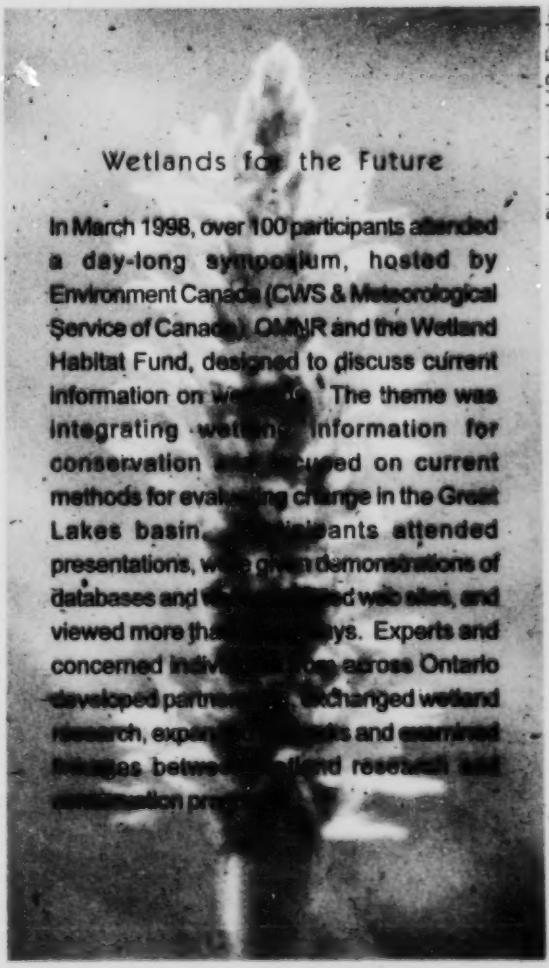
The Atlas provides information on wetland type, site type, significance and status, as well as a qualitative assessment of stressors affecting coastal wetlands and biodiversity data for significant coastal wetland-dependent species. Polygons depicting wetland boundaries are based on data from OMNR's Natural Resource Values Information System. The report and its associated database provide a framework for the development of a comprehensive and current coastal wetlands database. The database is archived by OMNR's Natural Heritage Information Centre.

The Atlas and database will be used to:

- *assess and monitor the status, losses of and changes in coastal wetlands;*
- *assist in land-use planning exercises;*
- *develop habitat management strategies;*
- *target limited resources for conservation and restoration programs;*
- *set goals for biodiversity and endangered species recovery plans;*
- *support OMNR and CWS policies and wetland conservation programs; and*
- *identify information gaps.*

Future plans include the incorporation of digital maps for inland wetlands, and the development of an interactive system that links directly to OMNR's Natural Areas Database.

For more information, contact Environment Canada - London or the Ontario Ministry of Natural Resources (see Contacts).



Pickerelweed / D. Forder

Wetlands for the Future

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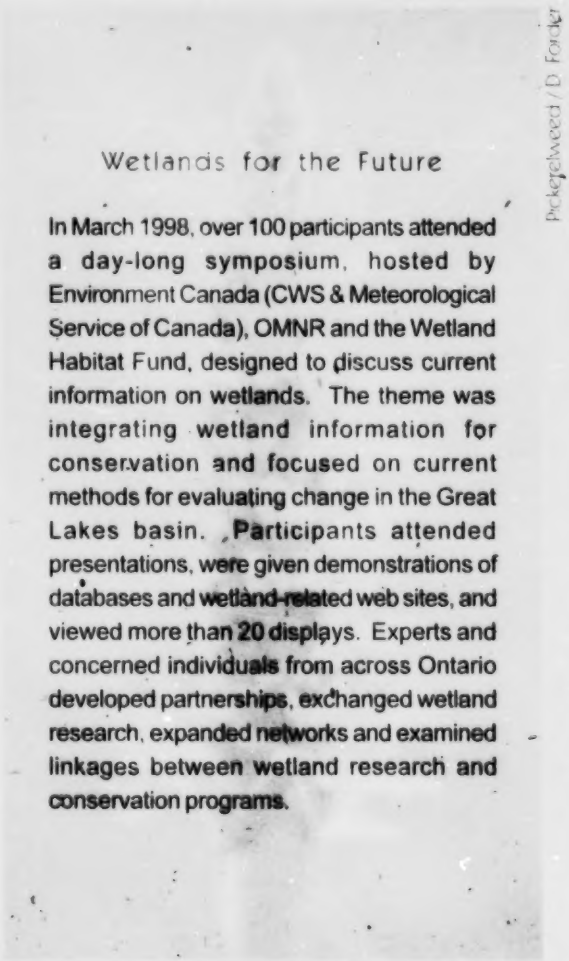


Pickerelweed / D. Forder

Stormwater Ponds and Wildlife

Stormwater ponds are used throughout Ontario to reduce downstream flooding and erosion by controlling the peak flow, and reducing the frequency of peak flow and the velocity of stormwater run-off. These ponds are also designed to trap and settle the solid material carried by the stormwater, which improves water quality and helps reduce contaminant loads in rivers or lakes. Wetlands can develop in stormwater ponds either by design or as a result of natural seeding and succession. Constructed wetlands are those that have been built to further improve downstream water quality by encouraging the solids to settle and by assimilating nutrients from the stormwater. However, stormwater can contain contaminants that are toxic, and while some contaminants biodegrade within the pond, others are more persistent and can accumulate in the sediment.

Wildlife are often attracted to stormwater ponds since they are exposed water bodies which may be located in or near natural green spaces. There has been some interest in enhancing and naturalizing stormwater ponds to further encourage wildlife use. Due to concerns that this might expose wildlife to contaminants, 15 ponds in southern Ontario were studied in 1997 and 1998. The study's findings follow.

- *Wildlife used all of the 15 stormwater ponds – species richness was low to moderate.*
- *As expected, all stormwater ponds contained contaminants, generally at low levels. Levels of some persistent contaminants in sediment and water exceeded Ontario and Canadian guidelines for water and sediment quality in the freshwater environment.*
- *Bioaccumulation of persistent contaminants in red-winged blackbird eggs was found at the two sites where they nested.*
- *Sediment from one of 15 sites was toxic to invertebrates in a short-term bioassay. No sites contained sediments that were toxic to fish in short-term bioassays. Conditions were toxic to frog development at one of four residential sites.*

A fact sheet summarizing the study is available from Environment Canada (see Contacts). It recommends stormwater pond monitoring and points out that enhancement for wildlife habitat is more ecologically viable in natural wetlands than in stormwater ponds. In addition, two scientific papers about the study will be published in a special issue of the Water Quality Research Journal of Canada.

Taking a sediment sample / L. Dunn

New User Guide and GIS Database for Lake Erie - St. Clair Basin Wetland Watersheds

A wetland database was recently developed by Environment Canada to complement an existing Lake Erie Non-Point Source database. In the Lake Erie watershed, non-point source pollution from agricultural sources is significant and the risk of non-point source degradation of the remaining wetlands in this region is very high. For each of the 546 evaluated wetlands in the Canadian Lake Erie - St. Clair basin, the wetland database provides the ability to identify non-point sources affecting wetlands.

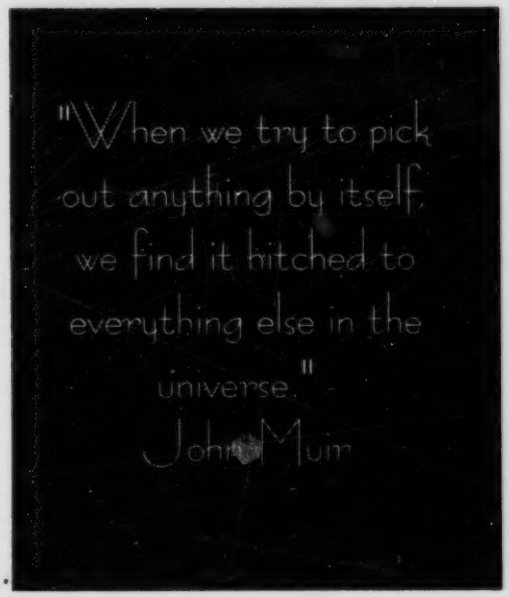
Showy pink lady's-slipper / B. Wesson

For each wetland the following have been mapped and digitized:

- *the overland contributing area (from which run-off flows overland directly to the wetland);*
- *upstream watershed (overland contributing area plus watersheds of all streams flowing into the wetland); and,*
- *within each overland contributing area, a rating of field-to-wetland delivery capability for each terrain unit.*

A new User Guide has been prepared for the database which provides a summary of the overland delivery process and the model used to generate it. The guide also describes each database component and the digital data quality checking procedure, and provides instructions on using the database, procedures for updating the data, and descriptions of database applications.

For more information, contact Environment Canada - Geomatics Unit (see Contacts) or visit: *http://glimr.cciw.ca/tmpl/glimr/database.cfm?ID=s340& orig=Glimr&Lang=e.*



The environment, and wetlands in particular, are incredibly dynamic. New scientific issues come to light each year. Some of the issues that were not identified in the first Action Plan, which we hope to explore in the next plan include: the revised Lake Ontario water level regulation plan, climate variability and change, species at risk, hydrologic function, the role of adjacent land-use in the sustainability of habitats, and invasive species.

Lake Ontario Water Level Regulation

The current Water Level Regulation Plan for Lake Ontario has been in force since 1960. It is based on criteria developed in the 1950s that explicitly recognize three major interests – hydropower, commercial navigation and shoreline property owners. The International Joint Commission has proposed a review of the regulation plan and the establishment of new criteria that would consider wetlands, fisheries and other environmental and emerging issues. A decision on government support for this activity is under discussion. In the meantime, scientific investigations are being considered and incorporated into existing programs on both the Canadian and U.S. sides of the St. Lawrence River and Lake Ontario basin wherever possible. The current St. Lawrence Action Plan III has incorporated considerable investigative work on impacts of fluctuating water levels on the shoreline wetlands and related environmental issues.

Water level regulation can have significant and detrimental environmental impacts on wetland diversity and productivity. Regulation reduces both the frequency and severity of extreme high and low levels and limits the range of water levels.

Climate Variability and Change

Apart from the existing stresses of urban and agricultural development, wetlands in the lower Great Lakes basin may also be impacted by climate variability and change. Climate variability and change could significantly alter the hydrology of the Great Lakes basin and require adjustment to a new pattern of water level fluctuations, particularly for coastal wetlands. Two critical aspects of climate variability and change are: an increased frequency and duration of low water levels, and a changed distribution and amplitude of seasonal water levels.

Researchers have been looking at wetland response to stresses including climate variability and change at various scales of assessment, from landscape (Great Lakes basin) to local wetland site, to model and predict impacts. A pilot "Wetland Vulnerability Index" has been developed for the shoreline wetlands of Lakes Erie and St. Clair. The goal is to identify which wetlands are sensitive to climate variability and change as reflected by an increased frequency and duration of low water levels. Wetland attributes (wetland type, geomorphic form/site type, level of disturbance) from the *Ontario Coastal Wetland Atlas* (see p. 15) were used to derive digital thematic maps. Digital maps of Turkey Point, Long Point and Lake St. Clair wetland vegetation and adjacent land-use are currently being analyzed to provide site specific information and improve the understanding of wetland dynamics (see Trends Through Time, p. 14). Preliminary analysis suggests that highly disturbed, palustrine swamps (swamps with an outflow to a stream, lake or other wetland) on the eastern shoreline of Lake Erie are the most vulnerable. Refinement of the index will provide guidance to wetland conservation programs in dealing with climate variability and change.

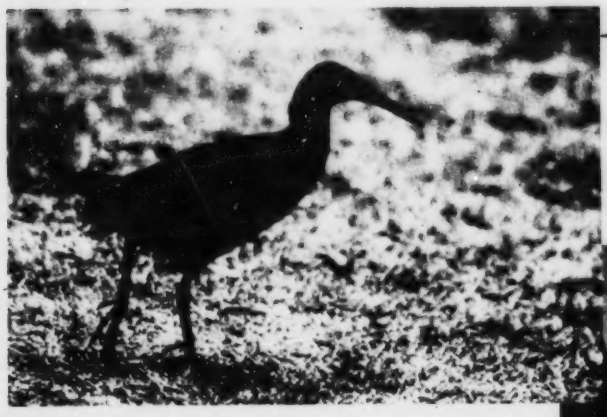
Species at Risk in Wetlands

The majority of species at risk of extinction on a national basis occur in the settled landscapes of Canada. The number of wetland dependent species currently listed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) as threatened and endangered is increasing as demonstrated by the recent emergency listing by COSEWIC of the Oregon spotted frog in British Columbia as endangered, and the Ontario Ministry of Natural Resources listing of the king rail and prothonotary warbler as endangered. Pressures on wetlands and their flora and fauna continue. Remaining wetlands are scarce and their inherent value is increasing while the overall area and quality of wetlands continues to decrease. The most common cause of decline and the limiting factor for the majority of endangered, threatened and vulnerable species is degradation and loss of habitat. This is particularly true for species at risk in wetlands such as the following:

prothonotary warbler	least bittern	swamp rose mallow
king rail	eastern massasauga rattlesnake	northern cricket frog
yellow rail	spiny softshell turtle	Fowler's toad

Status reports have been prepared for all COSEWIC species. These reports outline historical information on the species, distribution, biological requirements, life cycle, current status of the population, habitat, and the reasons for the designation and decline. Recovery plans are then developed to maintain and augment current populations and identify the necessary actions to prevent further decline of the species. Many of the actions identified in the recovery plans have strong links with GLWCAP goals. For instance, key breeding areas for king rail are coastal Great Lakes wetlands.

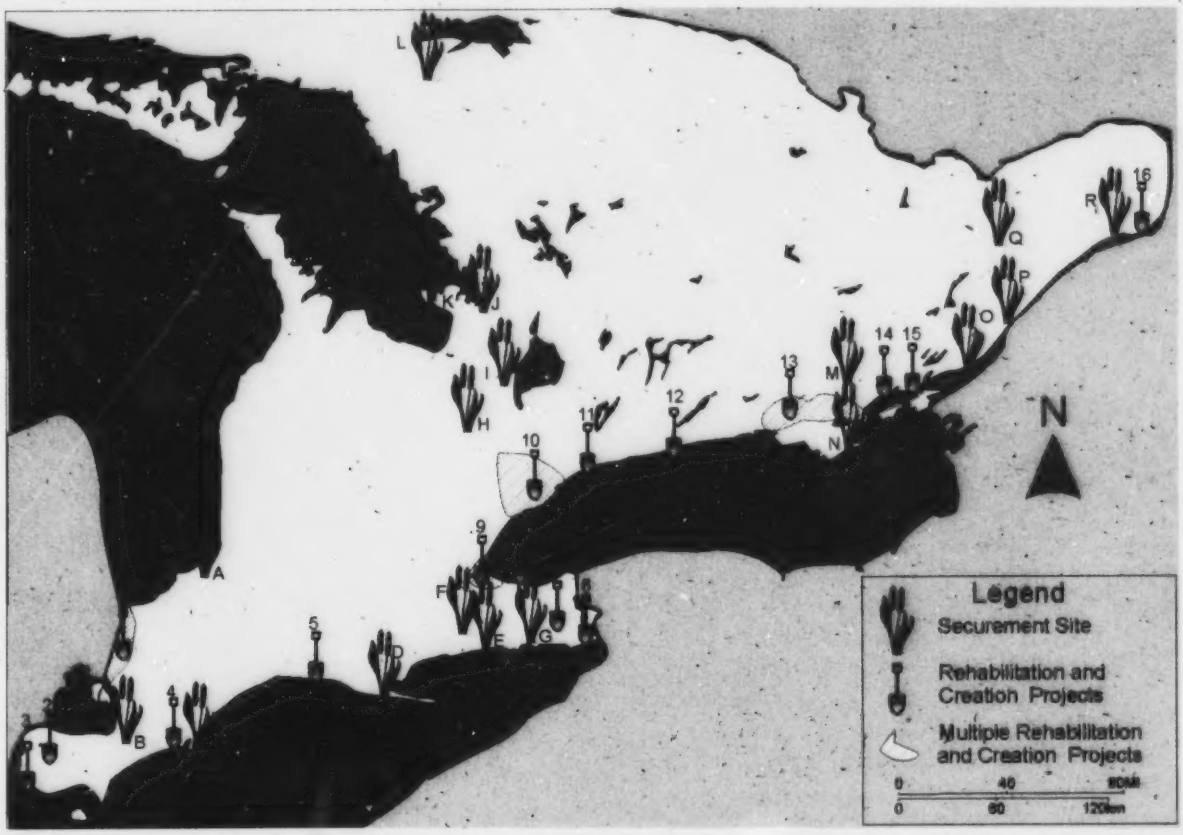
A special session on species at risk in wetlands is planned for the Quebec 2000 Wetlands Conference (see p. 43) to present approaches to research and management of these species in wetlands and other habitat types.



Left: King rail / G.K. Peck

Below: Surveyor uses tape recording to elicit calls of the secretive king rail / L. Maynard

Selected Wetland Securement, Acquisition, Creation and Rehabilitation Projects



Creation and Rehabilitation Projects

1. **St. Clair River**
   - Centre by the Bay
   - Chenal Ecarte
   - Waterways for Wildlife
   - MacDonald Park
   - McKeough Floodway Naturalization
2. **Ruwe Marsh**
3. **Windsor Salt Riverfront Marsh**
4. **Rondeau Bay Watershed**
5. **Lower Big Otter Creek**
6. **Willoughby Marsh**
7. **Welland River**
8. **Martindale Pond**
9. **Hamilton**
   - Watershed Stewardship
   - Cootes Paradise
   - Stoney Creek Marshes
10. **Toronto**
    - Waterfront Pilot Projects
    - Keffer Marsh
    - Coastal Wetlands Rehabilitation
    - Terrayiew Willowfield
    - Tommy Thompson Park
    - Colonel Sam Smith Park
    - Chester Springs Marsh
    - Mud Creek
    - Mimico Creek
    - Bolton Springs
    - Ruperts Pond
11. **Oshawa Second Marsh**
12. **Wesleyville Marsh**
13. **Bay of Quinte**
    - Landowner Contact
    - Sawguin Creek
    - East Bayshore, Marsh Creek
14. **Little Cataraqui Marsh**
15. **Butternut Creek Swamp**
16. **Cornwall Waterfront**

Securement Sites

A. Port Franks Wetlands and Dunes	**(79 hectares)**
B. Pigeon Marsh	**(75 hectares)**
C. Rondeau Bay	**(7.5 hectares)**
D. Long Point Wetland Complex	**(73 hectares)**
E. Dunnville Marsh	**(384.5 hectares)**
F. North Cayuga Slough Forest	**(19 hectares)**
G. Wainfleet Bog	**(887 hectares)**
H. Alliston Basin Wetlands	**(66.8 hectares)**
I. Minesing Swamp	**(392 hectares)**
J. Matchedash Bay	**(76 hectares)**
K. Fairlan Lake Bog	**(71.2 hectares)**
L. Cache Bay	**(90 hectares)**
M. Mud Lake (Menzel Centennial N.R.)	**(842 hectares)**
N. Big Sandy Bay	**(44.5 hectares)**
O. LaRue Mills	**(7.0 hectares)**
P. Brockville Long Swamp Fen	**(117 hectares)**
Q. Riley Marsh	**(191 hectares)**
R. Hoasic Creek (DuPont Provincial N.R.)	**(609 hectares)**
*** Other Sites Pending**	**(444.5 hectares)**
Total area secured	**4477.0 hectares**

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A variety of methods can be used to secure wetlands. In most cases, the larger the financial investment in the site, the greater the protection provided. The hectares reported in the table have been secured through high security techniques (acquisition), through the cooperation of a number of agencies. Securing wetlands remains an opportunistic process, particularly for acquisition. It is difficult to predict where and when Great Lakes wetlands will become available for purchase as well as where and when landowners will be open to other protection options. Further, budgets for acquisition are often difficult to raise by land-conservation organizations until the properties have been identified.

Non-acquisition wetland securement methods are also critical to protecting habitats and biodiversity, as are the efforts of individual landowners. These methods are becoming increasingly popular and important as acquisition budgets shrink, stewardship grows in acceptance, and income tax and other incentives for private land stewardship improve. For instance, the federal Ecological Gifts Initiative has recently made it more attractive to donate land, easements, covenants or servitudes (see p. 36).

Thousands of wetlands are owned, managed and cared for by individual landowners. Efforts to encourage private stewardship can protect more wetlands than acquisition, through both formal or legally-binding (e.g., conservation easements) and informal (e.g., handshake or verbal agreements) arrangements. Stewardship is critical to wetlands conservation and warrants promotion, recognition and encouragement. Landowner contact programs which encourage stewardship by private owners, often in a rural or agricultural setting, are a key mechanism employed by a variety of programs, agencies and groups to achieve this goal. For instance, Ducks Unlimited Canada has protected 25,000 hectares of wetlands and 32,000 hectares of associated uplands in the Great Lakes basin through its OEHJV and Land CARE (see p. 31) activities since 1994.

Wetland Securement Projects (High Security, Acquisition)

Wetland	Habitat Secured (ha)
[illegible]	79.0
[illegible]	75.0
[illegible]	7.5
[illegible]	75.0
[illegible]	364.5
[illegible]	19.0
[illegible]	607.0
[illegible]	96.8
[illegible]	382.0
[illegible]	78.0
[illegible]	71.2
[illegible]	60.0
[illegible]	642.0
[illegible]	44.5
[illegible]	7.0
[illegible]	117.0
[illegible]	191.0
[illegible]	955.0
[illegible]	444.0
[illegible]	77.0

[illegible]

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Mud Lake (Menzel Centennial NR)	842.0
Big Sandy Bay	44.5
LaRue Mills	7.0
Brockville Long Swamp Fen	117.0
Riley Marsh	191.0
Hoasic Creek (DuPont Provincial NR)	609.0
Other sites pending	444.5
Total area secured	**4,477.0**

Note: These figures represent acquisitions between March 1994 and March 2000 and include uplands surrounding the secured wetlands which are critical to wetland function and provide habitat for a number of species which require both types of habitat in proximity.

Corporation Donates Land for New Nature Reserve

The creation of the 609 hectare DuPont Provincial Nature Reserve was made possible through the generous donation of two properties by DuPont Canada Inc., and the acquisition of a third by the Nature Conservancy of Canada on behalf of the Canadian Wildlife Service.

The Hoasic Creek Hardwoods Area of Natural and Scientific Interest, now known as the DuPont Provincial Nature Reserve, will be managed by Ontario Parks as a nature reserve class provincial park to ensure the integrity and long-term protection of the natural resources of the site. Through the protection of this site significant gains have been made for conservation in eastern Ontario. The site includes the most mature late successional forest of its size in the former Dundas County.

The site also represents an important gain for wetlands conservation in the Great Lakes basin. It includes a number of wetlands of various types, including the provincially significant Riverside Marsh, on the shore of the St. Lawrence River. The center of the hardwood forest is dominated by a mature red and silver maple swamp which contains black ash, a locally significant species.

Protecting this property will also ensure that the important links between the Hoasic Creek Hardwoods and Riverside Marsh are not severed. Eastern Ontario's largest great blue heron colony is found here as well as 365 plant species. The heronry is particularly significant since the occupied trees are relatively healthy, implying a long life for the colony.

The site represents one of the first corporate donations of its size under the Ecological Gifts Initiative (see p. 36). DuPont had owned the property for a number of years and decided to donate it to the NCC, in a demonstration of good corporate citizenship. The creation of this nature reserve illustrates the value of non-government organizations working together with private industry and all levels of government to achieve significant conservation gains.

Heronry / B. Wesson

What is Stewardship?

Stewardship is the careful management and nurturing of a resource, such as land, water, a species, community, or other natural attribute. Property owners have an opportunity to safeguard, conserve and restore these resources through wise land-use decisions, including voluntarily restricting certain activities (e.g., construction, logging, grazing livestock, etc.) from sensitive portions of properties, actively managing the property for particular species or habitats, or donating the property or an easement to a government agency or conservation organization. Private land stewardship is usually carried out in partnership with advice and incentives provided by government and non-government conservation partners.

Marsh habitat / J. Mitchell

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Marsh habitat / J. Mitchell

Celebrating the New Millennium by Conserving Canada's Habitats

A new program initiated in 1999, Natural Legacy 2000 (NL2000) encourages a stewardship approach to the conservation of ecologically significant natural habitats across the country. The program will protect Canada's wildlife and habitats by motivating Canadians to be active stewards of their local environments. This ambitious project is supported by the Government of Canada's Canadian Millennium Partnership Program and is being delivered through Canada's leading conservation organizations including: the World Wildlife Fund Canada (WWF), Ducks Unlimited Canada (DUC), the Canadian Nature Federation (CNF), and The Nature Conservancy of Canada (NCC). The goal is to mark the millennium with initiatives which motivate Canadians to become active stewards of their local environment. The federal government's $10 million grant will be matched better than two-to-one by the partner organizations.

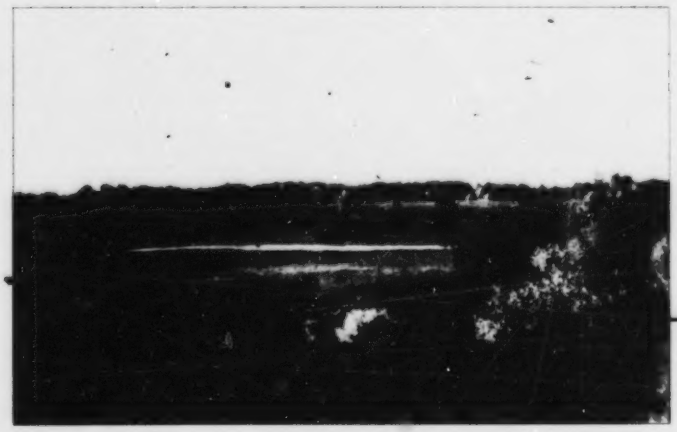
Two of the program's five components complement and contribute directly to the wetland protection goals of the GLWCAP. These are (a) the NCC's goal of protecting 20,000 hectares ecologically significant land through land donations and perpetual conservation easements and (b) DUC's goal of conserving and enhancing over 20,000 hectares of wetlands and associated upland habitats through voluntary agricultural stewardship programs with private landowners. The Natural Legacy 2000 Program also supports saving endangered species through up to 80 wildlife conservation projects (WWF lead), building a protected areas network through local action projects (WWF lead), and protecting bird habitat through the identification and conservation of Important Bird Areas (CNF lead).

Counting strictly acquisitions, ¼ of the GLWCAP's 6,000 hectare wetland securement target has been met.

Local Couple Embodies the Spirit of Stewardship

One of the early successes under the NCC's Natural Legacy 2000 program, has been the protection of the 45 hectare Mud Lake property. This Class 2 provincially significant wetland near Ingersol, in southwestern Ontario, provides a diversity of bird and wildlife habitat. It contains both marsh and mixed forest, including some Carolinian species.

The donors, Don and Ruth Bucknell, selected a conservation easement agreement with the NCC in order to protect the natural features of the site in perpetuity. They are keen naturalists who care about their local environment. The Bucknells continue to maintain an active interest in the property by conducting marsh bird surveys under the Marsh Monitoring Program. In an area increasingly subject to agricultural and development pressure, both Don and Ruth wanted to see the land they had cared for, protected for the enjoyment of future generations. They agreed that preservation of some of the area's natural heritage would benefit both the community and other landowners in the area. Through the decision to protect Mud Lake, the Bucknells have shown leadership, generosity and foresight.



The Bucknell's view of Mud Lake / D. Forder

Acquired Wetland Habitats Support

The number of wetland species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the Committee on the Status of Species at Risk in Ontario (COSSARO) as threatened and endangered is increasing as pressures on wetlands and their flora and fauna continue. Many protected wetlands provide the only havens for these species. For example, protected wetlands such as those in the 10 National Wildlife Areas in Ontario managed by CWS, provide valuable habitat for species at risk.

Recently acquired wetlands and adjacent uplands contribute to the protection of habitat for a variety of species, including a number of species at risk. Several species and their preferred habitats reported in or adjacent to selected recently acquired wetlands are highlighted in the adjoining table. Activities to conserve species at risk such as recovery planning are described under Emerging Issues (p. 18) and pending legislation is discussed under Strategy 5 on page 34.

Six per cent of the world's wetlands are found in Ontario.

Wetland habitat

Marshes
Marshes are nutrient rich wetlands that are dominated by emergent vegetation such as cattails, rushes and sedges.

C.A. Bishop

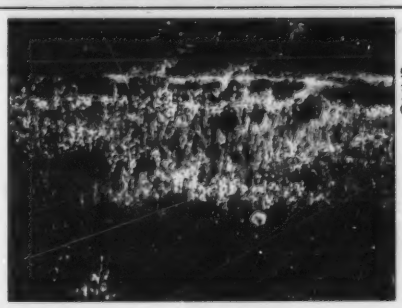
Swamps
Swamps are permanently or seasonally flooded nutrient rich wetlands that are dominated by tall shrubs and trees.

B. Wesson

Bogs
Bogs are nutrient poor, peat covered wetlands that are dominated by heath shrubs and sphagnum moss.

D. Forder

Fens
Fens are peat covered wetlands that are dominated by sedges, and may support trees or shrubs, as they are more nutrient rich than bogs.



OMNR

( ) - COSEWIC { } - OMNR E - Endangered, T- Threatened, V - Vulnerable
Only wetland related species are listed. Flora and fauna recorded on, adjacent to or near securement sites are l
habitat protection programs.

Species at Risk Conservation

Species	Status		Securement Site (see map p. 20)
Bald Eagle		(E - 1973)	Dunnville Marsh
Bigmouth Buffalo	(V -1986)		Hoasic Creek
Black Tern		(V - 1996)	Long Point Wetland Complex
Brindled Madtom	(V -1985)		Matchedash Bay
Eastern Fox Snake	(T -1999)	(T - 2000)	Pigeon Marsh
Fowler's Toad	(T -1999)	(T - 2000)	Port Franks Wetlands and Dunes
King Rail	(E -1994)	(E - 1999)	Riley Marsh
Lake Chubsucker	(V -1994)	(T - 2000)	Rondeau Bay
Least Bittern	(V -1999)	(V - 2000)	Wainfleet Bog
Prairie White Fringed Orchid	(V -1986)		
Queen Snake	(T -1999)	(T - 2000)	
Small White Lady's-slipper	(E -1999)	(E - 1978)	
Short Eared Owl	(V -1994)		
Spiny Softshell Turtle	(V -1991)	(T - 1995)	
Spotted Gar	(V -1994)	(T - 2000)	
Spotted Turtle	(V -1991)	(V - 1995)	
Swamp Rose Mallow	(V -1987)		
American Water-willow Common	(T -1984)	(V - 1996)	Brockville Long Swamp Fen
Greenbrier	(T -1994)	(V - 1995)	Hoasic Creek (DuPont Provincial NR)
Cucumber Tree	(E -1999)	(E - 1987)	Minesing Swamp
Louisiana Waterthrush	(V -1996)	(V - 1995)	North Cayuga Slough Forest
Prothonotary Warbler	(E -1996)	(E - 1999)	Wainfleet Bog
Queen Snake	(T -1999)		Mud Lake (Menzel Centennial NR)
Red-shouldered Hawk	(V -1996)	(V -1995)	
Wood Turtle	(V -1996)	(V - 1995)	
Massasauga Rattlesnake	(T -1991)	(T - 1995)	Fairlan Lake Bog
Prairie White Fringed Orchid	(V -1986)		Wainfleet Bog
Spotted Turtle	(V -1991)	(V - 1995)	
Branched Bartonia	(V -1992)		Alliston Basin Wetlands
Prairie White Fringed Orchid	(V -1986)		Brockville Long Swamp Fen
Spotted Turtle	(V -1991)	(V -1995)	

Not all species have been recorded at all sites, but illustrate the types of habitat and species that are being protected through the GLWCAP and other

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Local Cattle Farmer Demonstrates Coastal Wetland Protection

Many of DUC's Natural Legacy 2000 projects focus on the agricultural landscape and complement its activities under proven programs such as Ontario Land CARE. One such project is the 25 year conservation agreement between Brian Windover and DUC to protect a 6.9 hectare coastal wetland on his farm in eastern Ontario. By mutual agreement, this wetland, on the southeast shore of Hay Bay, and 3.7 hectares of surrounding uplands, will be managed for long-term conservation.

To get the ball rolling, Mr. Windover contacted DUC's Kingston office for assistance in preventing his cattle from accessing the wetland and the steep portion of the surrounding uplands in order to improve water quality and protect the wetland. The project will benefit both herd-health and local wildlife populations by eliminating disturbance and degradation of the wetland and providing an alternative watering system for the livestock.

Mr. Windover installed a 500 metre fence and a nose pump to deliver water from an excavated channel to improve conditions for both the wetland and the herd. In addition, the adjacent uplands have been excluded from pasturing cattle, creating a 30 metre wide buffer around the wetland to prevent runoff from entering the wetland. By making the decision to call DUC for advice and assistance, Mr. Windover has shown leadership, initiative and a commitment to conservation which will hopefully encourage others in the area to see wetlands as an asset to their farm operations rather than a liability.

Nose pump / A. Margetson

Tools for NL2000

DUC's

All of Ducks Unlimited Canada's NL2000 projects require a 10 to 25 year free conservation agreement with the landowner. These agreements are akin to licenses which can be and often are registered on title and become legally binding on both parties.

NCC's

Conservation easement: a legal document in which a landowner agrees to restrict activities that would threaten the environmental value of the land (e.g., building, logging, draining, etc.). This agreement allows the owner to remain on the land while ensuring its protection from future development.

Fee-simple donation: title to the property is transferred to the NCC, which is then responsible for overseeing future ownership and management of the land.

Planned gift: the landowner makes a commitment to donate ecologically important land to the NCC at a future date through a bequest or will.

Conservation pledges: other formal commitments made by a landowner to ensure the long-term conservation of his/her land.

In an attempt to put back a fraction of the wetlands that have been lost over decades and improve the functions of those degraded wetlands that remain, a number of agencies and groups are rehabilitating wetlands. These activities can be very complex and expensive depending on the nature of the problems being addressed. Efforts to stem wetland losses (which continue to this day) are also vital to conservation efforts and are reported through the other strategies in this report.

The last couple of years have been interesting and difficult ones for wetland rehabilitation project managers. Extremely low water levels have left some projects 'high and dry' (see Sawguin Creek Marsh, p. 30). Current water levels on the lower Great Lakes are below their long-term averages, but still well above the record low levels recorded during the 1930s and 1960s (see *http://chswww.bur.dfo.ca/danp/Network%20Graphs.htm*). For many projects, the situation has created new opportunities. Water level change is a natural occurrence which coastal wetlands require to maintain themselves. The natural changes in lake levels (both highs and lows) have been dampened for decades by artificial control of water levels in the Great Lakes for navigation and hydropower generation. The recent extreme lows are providing an exciting opportunity to observe the response of coastal wetlands, without engineering the change in water level.

Drawdowns are a commonly employed wetland rehabilitation technique which encourages vegetation growth by providing oxygen to germinate the seed bank in the sediment. With the water at such low levels, many coastal wetland projects are focusing on monitoring the effects of the natural 'drawdown', rather than extensive rehabilitation activities. The hope is that wetland seed banks that have been under water for years will germinate under these conditions and a rebound in vegetation will be seen in the next few years. Other projects are taking advantage of the low water levels by planting in areas that were previously inaccessible.

Oshawa Second Marsh is one of the projects using the opportunity to monitor vegetation response in its outdoor laboratory. Previous studies have been unable to confirm whether or not a viable seed bank exists in the marsh. The large-scale experiment which is being facilitated by naturally low water levels in Lake Ontario should put the argument to rest once and for all. The current study includes monitoring vegetation along transects to evaluate seedling emergence. Unfortunately in the outdoor laboratory, the effects of herbivores such as Canada geese and muskrats may confuse the results. The geese have been known to eliminate large stands of seedlings in a single visit. To reduce the number of confounding factors, buckets of sediment have been taken to a greenhouse to be grown out for comparison. The results will assist in determining future management actions for the marsh.

Our target is 6,000 hectares, how are we doing?

Funding Program / Agency	Area (ha) Underway	Area (ha) Completed
Great Lakes 2000 Cleanup Fund	1,359	975
EcoAction 2000	29	13
Ducks Unlimited Canada (OEHJV) (Ontario Land Stewardship, beaver pond management, etc.)		9,525
Wetland Habitat Fund (OEHJV)		2,250
TOTAL	1,388	12,763

*Underway or completed between April 1994 and September 1999

Spotted turtle / J. Mitchell

Local Cattle Farmer Demonstrates Coastal Wetland Protection

Many of DUC's Natural Legacy 2000 projects focus on the agricultural landscape and complement its activities under proven programs such as Ontario Land CARE. One such project is the 25 year conservation agreement between Brian Windover and DUC to protect a 6.9 hectare coastal wetland on his farm in eastern Ontario. By mutual agreement, this wetland, on the southeast shore of Hay Bay, and 3.7 hectares of surrounding uplands, will be managed for long-term conservation.

To get the ball rolling, Mr. Windover contacted DUC's Kingston office for assistance in preventing his cattle from accessing the wetland and the steep portion of the surrounding uplands in order to improve water quality and protect the wetland. The project will benefit both herd-health and local wildlife populations by eliminating disturbance and degradation of the wetland and providing an alternative watering system for the livestock.

Mr. Windover installed a 500 metre fence and a nose pump to deliver water from an excavated channel to improve conditions for both the wetland and the herd. In addition, the adjacent uplands have been excluded from pasturing cattle, creating a 30 metre wide buffer around the wetland to prevent runoff from entering the wetland. By making the decision to call DUC for advice and assistance, Mr. Windover has shown leadership, initiative and a commitment to conservation which will hopefully encourage others in the area to see wetlands as an asset to their farm operations rather than a liability.

Nose pump / A. Margetson

Tools for NL2000

DUC's

All of Ducks Unlimited Canada's NL2000 projects require a 10 to 25 year free conservation agreement with the landowner. These agreements are akin to licenses which can be and often are registered on title and become legally binding on both parties.

NCC's

Conservation easement: a legal document in which a landowner agrees to restrict activities that would threaten the environmental value of the land (e.g., building, logging, draining, etc.). This agreement allows the owner to remain on the land while ensuring its protection from future development.

Fee-simple donation: title to the property is transferred to the NCC, which is then responsible for overseeing future ownership and management of the land.

Planned gift: the landowner makes a commitment to donate ecologically important land to the NCC at a future date through a bequest or will.

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Spotted turtle / J. Mitchell

Encouraging Stewardship in the Bay of Quinte

Wetland and shoreline protection, enhancement and rehabilitation is an important issue in the Bay of Quinte, on the north shore of Lake Ontario. It is estimated that 12,000 hectares of wetlands have been destroyed and only 7,000 hectares remain in this area. In addition, an estimated 80 per cent of the Upper Bay's shoreline has been altered and its habitat values degraded.

The Landowner Contact Program is an integral component of the Bay of Quinte Remedial Action Plan's attempt to protect and restore shoreline and wetland habitat. The Program is undertaken with financial support from the Great Lakes 2000 Cleanup Fund and the Wetland Habitat Fund, along with in-kind support from Quinte Conservation.

Most wetland projects have been initiated in southern portions of the Bay's watershed, primarily on agricultural land. Here, the motivating force is usually to improve farm operations through better herd health, pasture management or water quality. Projects include: fencing and alternative water supplies to restrict cattle access, native tree and shrub plantings adjacent to the wetlands; the creation of shallow open water cells in monotypic cattails or reed canary grass, native grass plantings, nest boxes and structures, and water control projects. Many projects use more than one technique, for example, planting and nest boxes are often just individual components of an overall strategy.

Interest from landowners has been very positive. As hoped, the program has been the catalyst to make ideas happen that had been "in the back of their minds" for some time. The combination of technical advice and financing has been successful in encouraging landowners to take action on the projects they envision for their shorelines or wetlands. In total, the program has helped protect or improve over 300 hectares of wetlands and 11 kilometres of shoreline.

Above: Cattle access to wetlands - a major issue / A. Margetson

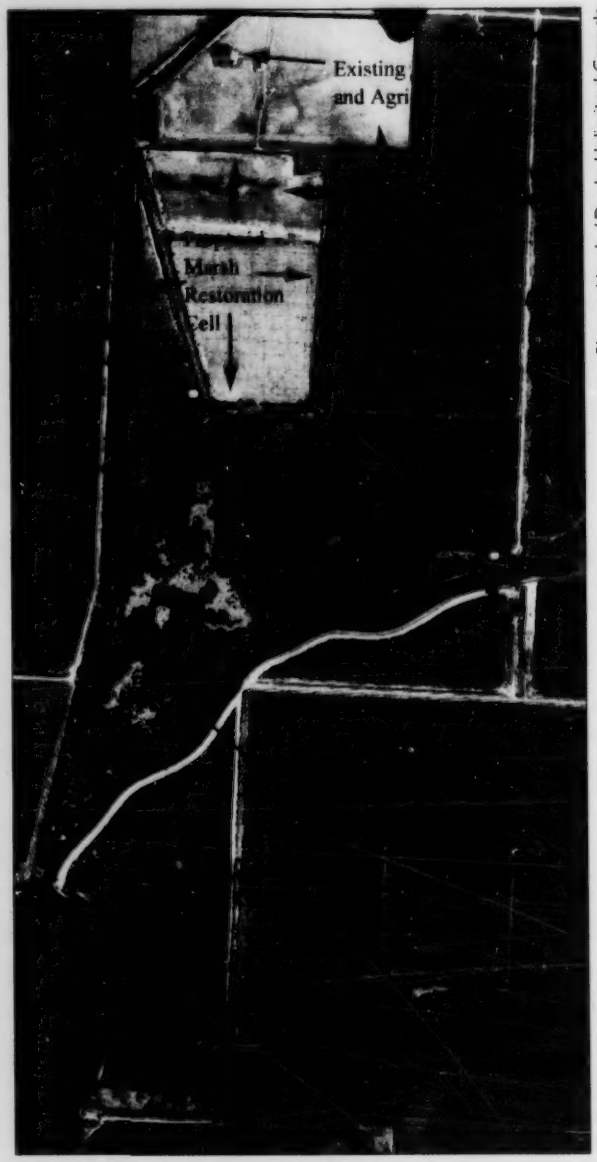
Right: Livestock restriction / A. Margetson

Another Piece of the Lake St. Clair Marshes Saved

Pigeon Marsh is one of two surviving remnants of the original wetlands east of the Chenal Ecarte extension of the Sydenham River on the northeastern shore of Lake St. Clair. The second — the Bear Creek Unit of the St. Clair National Wildlife Area – is recognized as a Ramsar wetland of international significance. The Pigeon Marsh property abuts the Bear Creek Unit. Nearly all of the wetlands in this area have been drained for agricultural production.

The remaining marshes of the Lake St. Clair complex are internationally renowned as a waterfowl staging area, but they also provide quality nesting habitat for nine waterfowl species, spawning habitat for 26 species of fish including important commercial and recreational species, and valuable habitat for other wildlife, such as shorebirds, songbirds, reptiles, and amphibians.

In August 1998, the 64 hectare Pigeon Marsh and surrounding upland property was acquired by Ducks Unlimited Canada, the Canadian Wildlife Service and Ontario Ministry of Natural Resources to ensure that it would not be lost to intensive agricultural or residential and recreational pressures. Now that the site is protected, plans are underway for enhancement and management of the existing marsh to provide optimum habitat conditions for waterfowl and other species through water level management. Adjacent areas on the site which are currently under cultivation will be restored to wetland, except for small, isolated portions where permanent grassland nesting cover may be established, if wetland restoration is impractical. Upgrading of existing dykes along with construction of some new dykes, a flexible pumping system to service several compartments and other water management controls and conveyances will be used in the rehabilitation.



Pigeon Marsh / Ducks Unlimited Canada

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Channelling Through

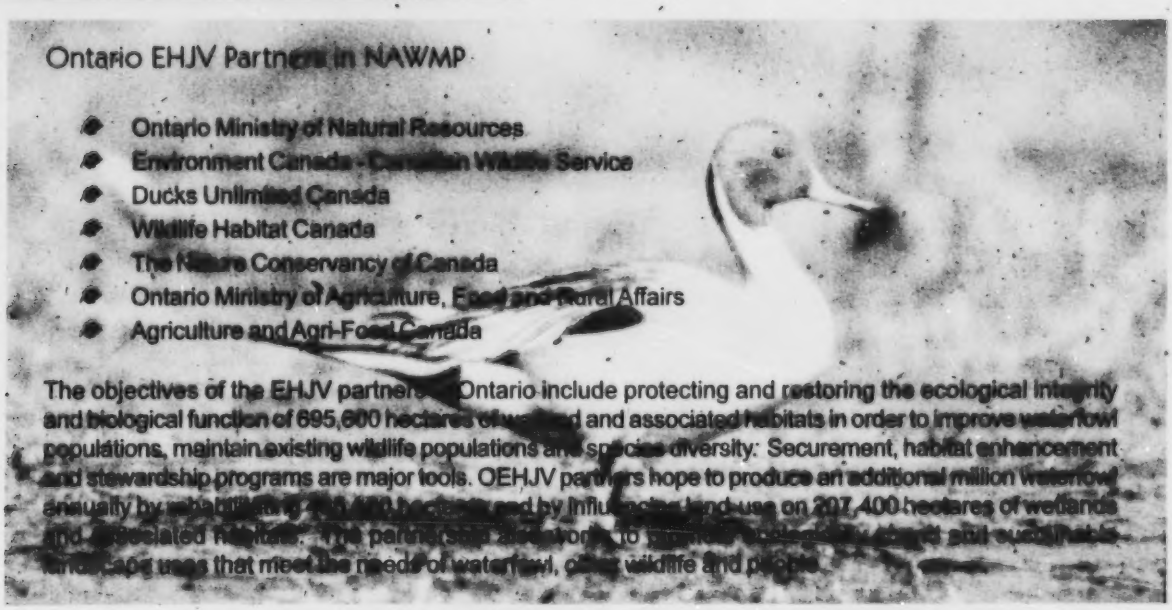
Sawguin Creek Marsh is the largest coastal wetland in the Bay of Quinte (over 2,000 hectares). Unfortunately, 70 per cent of the area consists of dense stands of cattail with limited open water, resulting in poor fish and wildlife habitat.

Cattail gained an advantage over other aquatic plants and filled the wetland following the regulation of Lake Ontario water levels in the 1950s. Water levels now fluctuate by approximately one metre; whereas historically this area experienced periods of much higher and lower water levels, which provided for a more diverse coastal wetland habitat. The growth of cattails was further encouraged by high sediment and nutrient loadings from the watershed and the construction of causeways.

To address the degraded conditions, a rehabilitation project was undertaken in the 98 hectare Huff's Island portion of the marsh. The goal was to restore valuable fish and wildlife habitat by opening up the cattails and creating areas of open water. A number of partners came together to make the project possible, including Environment Canada, the Ontario Ministry of Natural Resources, Quinte Conservation, Prince Edward County, and Ducks Unlimited Canada.

During the winter of 1998, a 5.6 kilometre network of open water channels and ponds was created using a floating backhoe. Dredged material was placed in alternating mounds along the channels to provide additional habitat diversity and safe nesting sites for waterfowl and other wildlife. Over 11 hectares has been greatly enhanced for use by wildlife, including waterfowl, herons, turtles, frogs and many fish species such as northern pike, pickerel and coarse bait fish. Monitoring efforts will determine whether the project has been a success and will be encouraged elsewhere. Low Lake Ontario water levels in 1999 left some channels with little water, so it is anticipated that the area will provide even better habitat when water levels rise again.

Sawguin Creek / Ducks Unlimited Canada


Ontario EHJV Partners in NAWMP
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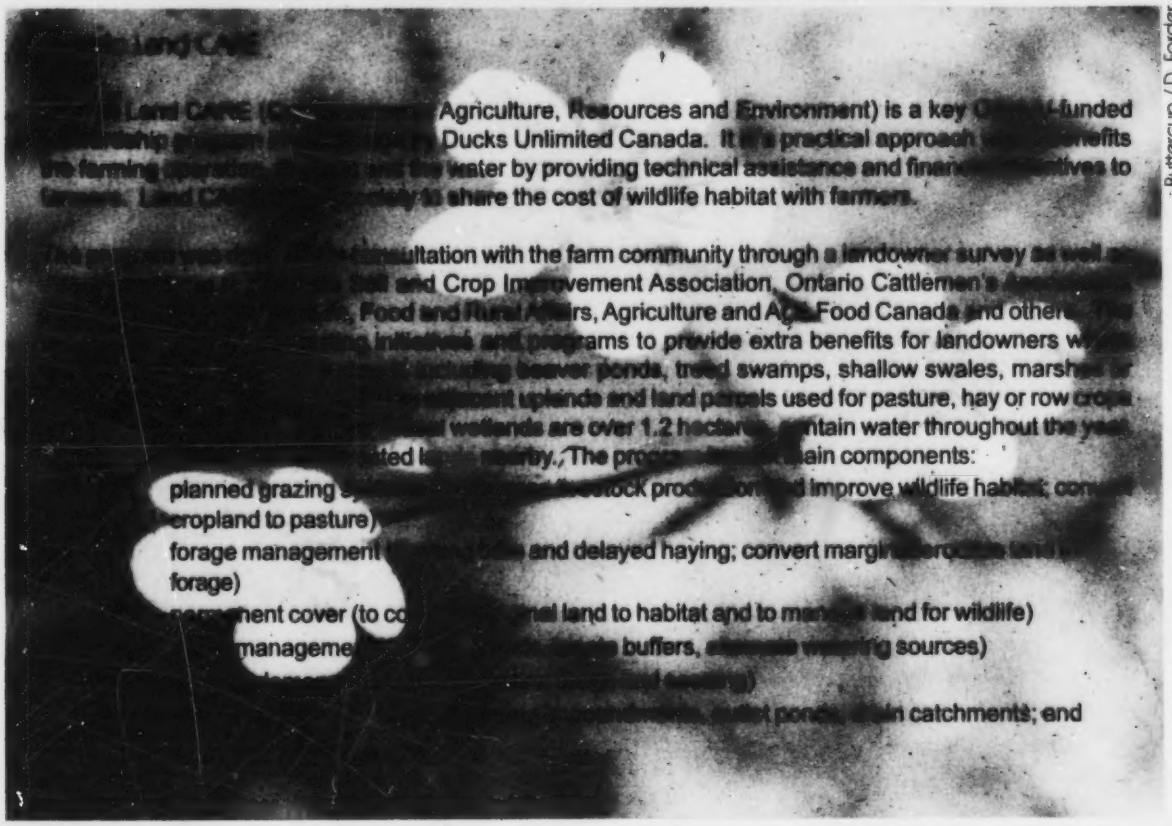
The objectives of the EHJV partners in Ontario include protecting and restoring the ecological integrity and biological function of 695,600 hectares of wetland and associated habitats in order to improve waterfowl populations, maintain existing wildlife populations and species diversity. Securement, habitat enhancement and stewardship programs are major tools. OEHJV partners hope to produce an additional million waterfowl annually by rehabilitating 488,400 hectares and by influencing land use on 207,400 hectares of wetlands and associated habitats. The partners support the development of sound and sustainable landscape uses that meet the needs of waterfowl, other wildlife and people.

Northern pintail / CWS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consultation with the farm community through a landowner survey
and Crop Improvement Association, Ontario Cattlemen's
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beaver ponds, treed swamps, shallow swales, marsh
uplands and land parcels used for pasture, hay or row
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Buttercup / D. Forder

Great Lakes Renewal Foundation

The Great Lakes Renewal Foundation is a new non-profit environmental organization that supports efforts to build the capacity of community-based partnerships to renew, conserve and sustain the Great Lakes basin ecosystem. It was created through a $5 million grant from the Government of Ontario in 1998.

Priority areas for funding include wetland, shoreline, and watershed rehabilitation, natural heritage systems restoration, and fish and wildlife habitat enhancement. In general, grants will be in the range of $15,000 to $100,000. Partnerships are required and must demonstrate funding and in-kind support to complement the grant. Multi-year grants will be considered, conditional on progress reporting. Applications are welcome at any time, and there are no deadlines for receiving ideas. More information and application forms can be found at: *www.greatlakes.on.ca.*

Sharing Experiences in Habitat Rehabilitation II

In November 1998, Environment Canada's EcoAction 2000 and Great Lakes 2000 Cleanup Fund programs held the second Sharing Experiences in Habitat Rehabilitation workshop in Barrie, Ontario. Eighty participants from government agencies, businesses, communities and non-government organizations gathered to share information on habitat restoration projects and techniques, monitoring methods, fund raising, non-point source pollution control, and community involvement in environmental projects. Consensus among this diverse group was achieved on the over-riding importance of three issues: community support and involvement, effective fund raising, and monitoring. A third workshop is being planned for the fall of 2000.

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Sawguin Creek / Ducks Unlimited Canada

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Northern pintail / CWS

Ontario Land CARE

Ontario Land CARE (Conservation of Agriculture, Resources and Environment) is a key OEHJV-funded stewardship program implemented by Ducks Unlimited Canada. It is a practical approach which benefits the farming operation, the land and the water by providing technical assistance and financial incentives to farmers. Land CARE allows society to share the cost of wildlife habitat with farmers.

The program was designed in consultation with the farm community through a landowner survey as well as direct input from the Ontario Soil and Crop Improvement Association, Ontario Cattlemen's Association, Ontario Ministry of Agriculture, Food and Rural Affairs, Agriculture and Agri-Food Canada and others. The program complements existing initiatives and programs to provide extra benefits for landowners where possible. It is targeted at wetlands including beaver ponds, treed swamps, shallow swales, marshes or seasonally-flooded ponds, as well as adjacent uplands and land parcels used for pasture, hay or row crops within one kilometre of a wetland. Ideal wetlands are over 1.2 hectares, contain water throughout the year, and should have some non-forested lands nearby. The program has six main components:

- planned grazing systems (to increase livestock production and improve wildlife habitat; convert cropland to pasture)
- forage management (flushing bars and delayed haying; convert marginal/erodible land to forage)
- permanent cover (to convert marginal land to habitat and to manage land for wildlife)
- buffer management (fence wetlands, create buffers, alternate watering sources)
- on-farm demonstration (conservation tillage and seeding)
- water management (stock-watering impoundments, outlet ponds, drain catchments; and the restoration of wetlands)

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How Much Habitat is Enough?

To assist efforts to reverse habitat loss and fragmentation, *A Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern* was prepared by Environment Canada and the Ontario Ministries of Natural Resources and Environment. The goals of the framework are to: (a) provide guidance on how much habitat is needed to rehabilitate degraded landscapes and (b) provide a method to identify priority locations for wetland, riparian and forest habitat rehabilitation and protection across a watershed or other landscape unit. The guidelines were developed for the rehabilitation of Great Lakes Areas of Concern, but the approach can be applied to any area.

The wetland guidelines include recommendations that:

- *ten per cent of a watershed and six per cent of any subwatershed should be comprised of wetlands;*
- *wetlands (particularly marshes) should have a herbaceous or woody vegetation buffer of 240 metres around them;*
- *rehabilitation activities should focus on swamp and marsh-type wetlands;*
- *wetland rehabilitation should be strategically located in a watershed;*
- *swamps should be regularly shaped and as large as possible; and*
- *marshes should be irregularly-shaped and of various sizes.*

Thresholds below these guidelines are also presented to indicate how the biological community is affected if only a portion of the guideline is met. A Great Lakes fact sheet entitled, *How Much Habitat Is Enough?* summarizes the framework and discusses three case studies where the approach has been used to select priority areas for rehabilitation (i.e., Welland River, Niagara; South Sidney and Wilton Creek, Bay of Quinte; and Humber River, Toronto). For more information, contact Environment Canada (see Contacts) or visit *www.cciw.ca/green-lane/wildlife/conservation/habitat-restoration/is_habitat.html*.

Definitions

Rehabilitation	Improvement of the functions or values of a degraded wetland.
Restoration	Modification of the existing function and structure of a wetland's habitat so that it is similar to historical conditions.
Creation	The conversion of a persistent upland vegetation community or ephemeral shallow water area into a permanent wetland where no previous wetland existed.
Enhancement	Activity which addresses the stresses or limitations to change one or more wetland functions or values.

Source: Temperate Wetland Restoration Guidelines

Marsh vegetation / J. Mitchell

Wetlands Special Issue

The results of a four-day Temperate Wetlands Science Workshop held in 1995 are being published as a special issue of the journal *Wetlands*. The workshop brought together leading wetland scientists and practitioners from across Canada and the United States to discuss the best available science on wetland restoration. Articles in the journal discuss the relative merits of wetland restoration techniques that have been used in the Great Lakes basin as well as in other inland wetlands in temperate North America. The special issue of *Wetlands* is available from the Society of Wetland Scientists (see Contacts).

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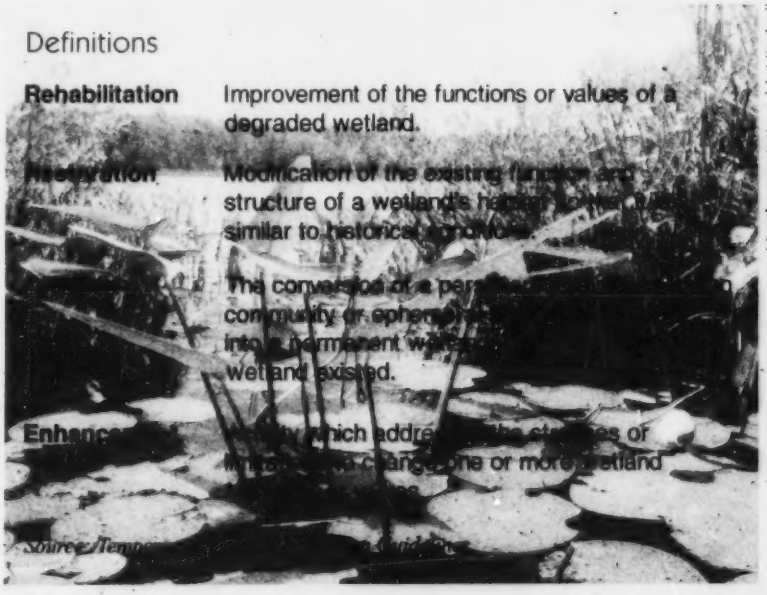

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Wetland Habitat Fund

Throughout Ontario, wetlands are owned by thousands of individuals, which means that maintenance and enhancement of these areas depend on the individual activities of these landowners. The Wetland Habitat Fund (WHF) was created in 1997 to support and encourage landowners who conserve and enhance wetland habitat for wildlife. The WHF provides private landowners in Ontario with financial assistance (up to 50 per cent or $5,000 whichever is less) for projects that improve the ecological integrity of wetland habitats. Projects must have a completed conservation plan that focuses on specific improvements to wetland and associated upland habitat.

The Fund is sponsored by Wildlife Habitat Canada, the Ontario Ministry of Natural Resources, the Canadian Wildlife Service, and the U.S. Fish and Wildlife Service. It is also a recognized program of the Ontario Eastern Habitat Joint Venture of the North American Waterfowl Management Plan. The WHF is delivered with the assistance of several conservation groups across the province, including Ontario's Conservation Authorities, the Landowner Resource Centre, Stewardship Kent and the Severn Sound Remedial Action Plan.

Preference is given to projects that use practical, cost-effective techniques to address habitat issues identified in a wetland conservation plan. These techniques include: establishing, protecting or enhancing vegetated buffers around wetlands; building small water retention (control) structures; planting dense nesting cover plots (native grasses and food species); adding in-wetland nesting sites (islands, artificial structures); improving grassed waterways to control soil erosion into wetlands; and, restricting livestock access and alternative watering systems. Private landowners receiving financial assistance through the WHF must agree to a written 10 year conservation agreement.

ONTARIO

As of September, 1999, 194 private landowners have received support through the WHF for their wetland enhancement projects. Costs for these projects have averaged $8,000, with WHF contributing about $3,000 to each. These projects have enhanced over 2,250 hectares of wetlands and a further 2,400 hectares of associated upland areas throughout southern Ontario. The majority of projects are conducted on farm properties (commercial or hobby) and about 40 per cent of projects are on non-farm properties.

For general information, contact the Wetland Habitat Fund (see Contacts). To apply for funding, contact the program representative for your area, available from: *www.wetlandfund.com/*.

There is no specific wetlands legislation in Ontario. Wetlands receive indirect protection through Ontario's *Planning Act, Fish and Wildlife Conservation Act, Municipal Act, Endangered Species Act, Lakes and Rivers Improvement Act, Conservation Land Tax Act, Conservation Authorities Act, Environmental Assessment Act, and Ontario Water Resources Act*, as well Canada's *Canada Wildlife Act, Fisheries Act, Migratory Birds Convention Act*, and *Canadian Environmental Assessment Act*. Wetlands are specifically recognized in the natural heritage protection measures of Ontario's *Planning Act*. However, other legislation, such as the *Drainage Act*, still work against wetland conservation.

Most often, wetlands are protected through policies and agreements. While valuable, these vehicles do not have the same clout as legislation.

Canada's Species At Risk Act - in preparation

The number of wetland species at risk listed by the Committee on the Status of Endangered Wildlife in Canada is increasing. The most common limiting factor and cause of decline for the majority of species at risk is degradation and loss of habitat.

Recognizing that species do not stay within the borders created by humans and that they need to be protected in a number of ways, the federal strategy on species at risk includes three key components: partnerships, legislation and stewardship. There have been a number of developments on all three aspects of this strategy with more expected in the future.

As of the summer of 1999, eight provinces and territories (including Ontario) are signatories to the *Accord for the Protection of Species at Risk in Canada*, which sets out the basic requirements for a national species at risk program and identifies a complementary partnership between provinces, territories and the federal government. The Accord was an important step in the development of federal legislation on species at risk, and serves as an umbrella for cooperation between federal, provincial and territorial governments.

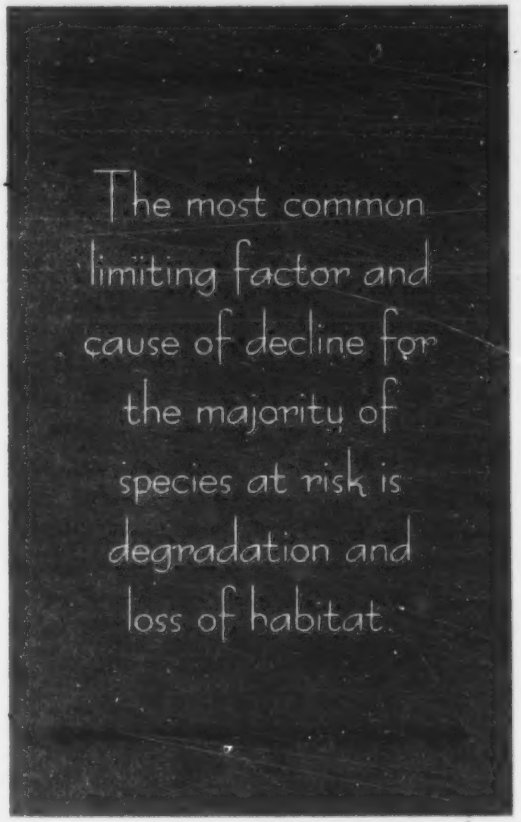
For several years, preparations have been made for federal legislation on species at risk through extensive consultations with government, business, industry, landowners, communities, organizations, and individuals. The results of these consultations are being used as the foundation of the new federal legislation and have been published in a series of discussion papers available on Environment Canada's Green Lane at *www.cws-scf.ec.gc.ca/es/fedleg.html*. A key component of the federal strategy and legislation is encouraging stewardship by individuals, communities, groups and organizations. Updates are available on Environment Canada's Species at Risk web site at *www.speciesatrisk.gc.ca*.

Ontario's *Endangered Species Act* came into force in 1971. It was the first legislation of its kind in Canada to protect species at risk. The Act prohibits the willful destruction of or interference with habitat of a regulated endangered species. Persons convicted of an offense under the Act are liable to a fine of up to $50,000 or imprisonment for up to two years, or both. There are currently 26 species regulated under the *Endangered Species Act*. Protection is also afforded threatened species under the *Fish and Wildlife Conservation Act* (FWCA) through schedules of specially protected wildlife. The capability of the FWCA to provide protection to certain threatened (or endangered) species as "specially protected wildlife" applies to species in certain taxonomic groups only (birds, mammals, reptiles, amphibians and invertebrates). Species of plants and fish are not eligible for "specially protected" status.

Eastern Massasauga rattlesnake / J. Mitchell

Federal Policy on Wetland Conservation

The *Federal Policy on Wetland Conservation* remains an important tool affecting land-use decisions on federal lands across Canada. There have been numerous examples where the Policy, adopted in 1991, and its *Implementation Guidelines for Federal Land Managers*, adopted in 1996, have led to avoidance or significant mitigation of development impacts on federal wetlands.


The most common limiting factor and cause of decline for the majority of species at risk is degradation and loss of habitat.

As mentioned below, the development of wetland mitigation and compensation guidance for the environmental assessment process is also occurring. In addition to the proceedings of a workshop and guidelines and principles available from the North American Wetlands Conservation Council (NAWCC), a report entitled *Wetland Environmental Assessment Guidelines* was released by Environment Canada in 1998. The Policy has become a benchmark globally in the implementation of wetland policies in many nations. Over 25 contracting parties to the *Ramsar Convention on Wetlands of International Importance* report that they have adopted such policies, noting that Canada was the first in the World. In May 1999, at its Seventh Conference, the Ramsar Convention adopted *Guidelines for the Development and Implementation of National Wetland Policies.* The preparation of these guidelines was led by Environment Canada in cooperation with wetland policy experts from other nations including Uganda, Australia, Trinidad and Tobago, and the United Kingdom, as well as the International Union for the Conservation of Nature.

Wetland Mitigation and Compensation

"No Net Loss" of wetland functions is a target and central principle of the *Federal Policy on Wetland Conservation.* Whether within or outside of an environmental assessment process, wetland mitigation is one approach to use in meeting this goal. The hierarchical sequence of mitigation alternatives which will result in the least impact on wetland ecosystems and will best meet the "No Net Loss" goal are:

- *Avoid - the first priority is to prevent developments affecting wetland functions and values;*
- *Mitigate/Minimize - where impacts cannot be avoided, minimization must be carried out by professionals at all project stages; and*
- *Compensate - the last resort for replacing losses of wetland functions once avoidance and minimization measures have been exhausted. The tendency to go straight to compensation rather than deal with potential impacts through avoidance, or at the design stage, must be avoided.*

Assessments under the *Canadian Environmental Assessment Act* (CEAA) must take all federal policies into consideration. "No Net Loss" comes into play when a proposed project is expected to have an impact on a wetland under federal jurisdiction, or on a non-federal wetland in a situation that triggers an environmental assessment under CEAA. A project proponent is obliged to mitigate all possible impacts on wetlands.

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Nationally, a new focus on proper application of compensation and mitigation concepts to wetland sites is underway. A national workshop on this theme was organized by the North American Wetlands Conservation Council (Canada) (NAWCC) and OMNR in 1997; proceedings are available from the NAWCC (see Contacts). Recently developed guidelines and principles for wetland mitigation as well as a compilation of Canadian case studies will also be available from the Council early in 2000. The guidelines have been approved by the NAWCC to provide advice on factors to consider about wetlands that may be impacted by development.

Mitigation banking is a method of compensation which plays a key role in wetland conservation in the United States, but thus far is not part of the Canadian conservation landscape. Mitigation banking is the creation, restoration or enhancement of wetlands that will be sold or exchanged to compensate for future wetland losses incurred as a result of development. Typically, the wetlands are designated as a bank and the value of the wetlands in the bank is quantified and assigned credits, which can be sold or "withdrawn" to compensate for losses from specific future development actions.

Does mitigation banking have a role to play in Canada? At present, the NAWCC recommends that mitigation banking, as currently conceived, should not become part of the wetland mitigation process in Canada. Historically, the U.S. experience has not been very positive. Although mitigation banking allows for some flexibility and compensation dollars to go to priority sites, it can also encourage a "commodity" approach to conservation wherein wetlands are traded for cash. Further, it places emphasis on compensation rather than conservation, and allows the avoid and mitigate/ minimize alternatives in the "No Net Loss" process to be circumvented.

Ecological Gifts - Amendments Under the Income Tax Act of Canada

In February 1995, the Government of Canada announced a new initiative under the *Income Tax Act of Canada*, creating provisions for donation of Ecological Gifts. Donation by private individual and corporate landowners of ecologically sensitive land is emerging as an important tool in conserving sensitive ecosystems and biodiversity across Canada. This is a relatively young program and there are still issues to be resolved, for instance capital gains tax exemptions and valuation of conservation easements.

Under this initiative, donations may be gifts of land, covenants, easements, or servitudes. The latter three are governed by provincial legislation; however, in order to obtain a useable tax receipt, the land being donated under an easement must be certified as ecologically sensitive. Donations may be made to a Canadian municipality, other government body or a registered charity whose primary purpose is the conservation of Canada's environmental heritage. The recipient issues a tax receipt for the value of the gift. The receipt is deductible against up to 100 per cent of the donor's annual income.

In Ontario, 60 properties have been certified — 42 of these properties have been donated as land and 18 have been donated as easements. These donations cover more than 3,300 hectares of ecologically sensitive land which will be managed for conservation purposes in perpetuity.

Bald eagle / J. Flynn

Late breaking news....

As announced in the 2000 Federal Budget there will be a reduction from two thirds to one third of the income inclusion rate on capital gains arising from donations of ecologically sensitive land and easements. This will help Canada's landowners and conservation groups in their efforts to preserve Canada's wildlife habitat and natural heritage.

Wetland Valuation – A Means to Save More Wetlands?

To be successful, wetland conservation programs must counteract powerful economic incentives that compel landowners and municipal and regional governments to convert wetlands. It has been suggested that valuing wetlands in economic terms would show the long-term unanticipated environmental costs from the loss of wetlands and assist the economic decision-making processes to explicitly take into account a more complete set of societal wetland benefits. However, developing tools to measure the economic values of wetlands is difficult. Many wetland benefits are indirect and some are extraordinarily difficult to assign a dollar value, in part because knowledge of wetland functions is incomplete and in part because economic valuation methods are not perfect.

Wetlands and Economics: An Annotated Review of the Literature, 1988-1998 (*http://www.cciw.ca/glimr/data/wetland-valuation/intro.html*) provides a comprehensive review of 277 recent wetland valuation studies. A fact sheet on the economic value of Great Lakes wetlands is in preparation.

The fact sheet will answer a series of questions about economic valuation of wetlands, including: what are economic wetland benefits and how are they different from ecological benefits?; which kinds of wetland values can and should be measured?; and what are some economic values that have been estimated for Great Lakes wetlands?

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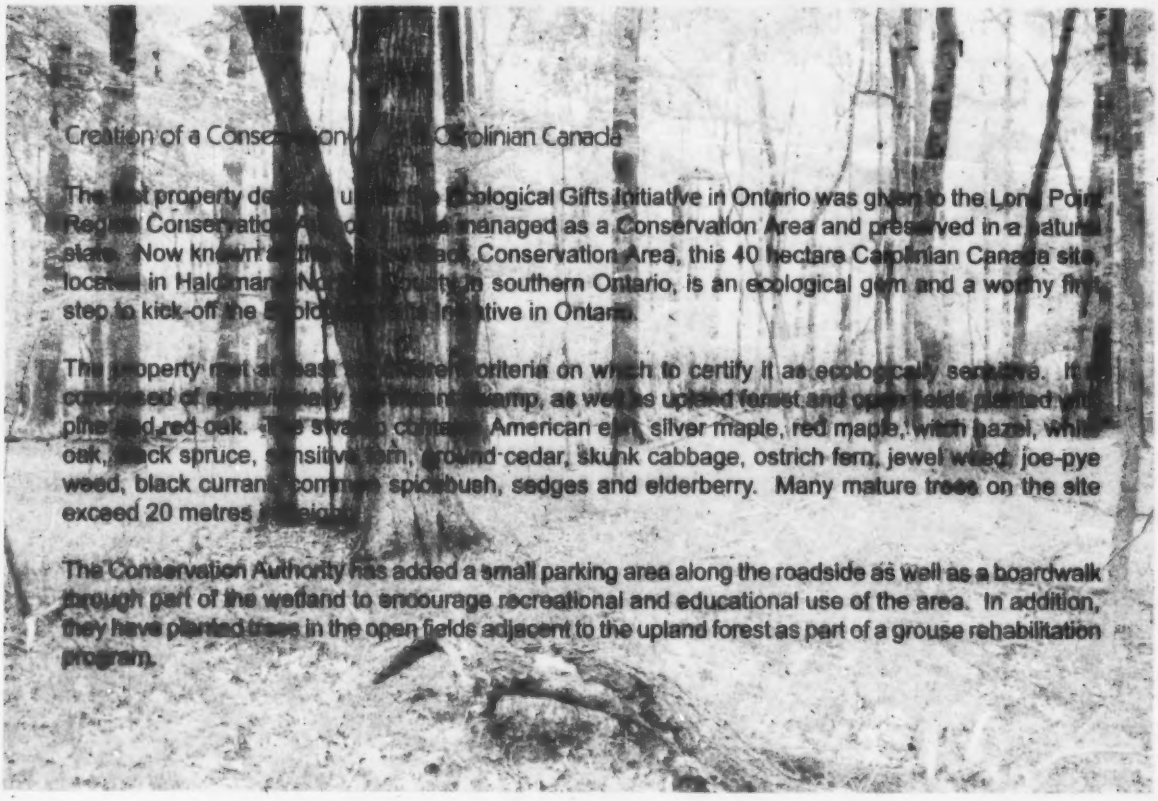

Carolinian forest / J. Mitchell

Creation of a Conse[illegible] Carolinian Canada

The [illegible] property de[illegible] u[illegible] Ecological Gifts Initiative in Ontario was given to the Long Point Region Conservation [illegible] managed as a Conservation Area and preserved in a natural state. Now known as [illegible] Conservation Area, this 40 hectare Carolinian Canada site, located in Haldimand [illegible] southern Ontario, is an ecological gem and a worthy first step to kick-off the E[illegible]ative in Ontario.

The property met at least [illegible] criteria on which to certify it as ecologically sensitive. It is comprised of [illegible] swamp, as well as upland forest and open fields planted with pine and red oak. The swamp contains American elm, silver maple, red maple, witch hazel, white oak, black spruce, sensitive fern, ground-cedar, skunk cabbage, ostrich fern, jewel weed, joe-pye weed, black currant, common spicebush, sedges and elderberry. Many mature trees on the site exceed 20 metres in height.

The Conservation Authority has added a small parking area along the roadside as well as a boardwalk through part of the wetland to encourage recreational and educational use of the area. In addition, they have planted trees in the open fields adjacent to the upland forest as part of a grouse rehabilitation program.

Trends in Provincial Wetlands Policy

In 1996, Ontario released the *Provincial Policy Statement* (PPS). Wetlands policy is one component of the Natural Heritage Policies. These policies also recognize the need to identify and protect other significant natural heritage features and areas, including the habitat of endangered and threatened species, fish habitat, woodlands, valleylands, Areas of Natural and Scientific Interest (ANSI) and wildlife habitat. These features and areas can contribute to the protection and maintenance of wetland habitats. The current wetland policy differs from earlier versions in that:

- *the area of the province subject to the more restrictive "no development" policy has been reduced by about 50 per cent.*
- *the width of adjacent lands is no longer specified in policy. The OMNR-recommended width for adjacent lands remains 120 metres, but planning authorities are encouraged to address the issue on a site-specific basis.*
- *lands situated between wetland complexes are no longer considered to be adjacent lands.*
- *the definition of wetlands was modified to clarify its application. Lands being used for agricultural purposes, which no longer exhibit wetland characteristics, are not considered wetlands.*
- *Environmental Impact Studies are no longer explicitly required in support of development applications. However, proponents are required to demonstrate that there will be no negative impacts on the natural features or on the ecological functions for which the wetland is identified.*

Creation of a Conservation Area in Carolinian Canada

The first property donated under the Ecological Gifts Initiative in Ontario was given to the Long Point Region Conservation Authority to be managed as a Conservation Area and preserved in a natural state. Now known as the Sidney Back Conservation Area, this 40 hectare Carolinian Canada site, located in Haldimand-Norfolk County in southern Ontario, is an ecological gem and a worthy first step to kick-off the Ecological Gifts Initiative in Ontario.

The property met at least six different criteria on which to certify it as ecologically sensitive. It is composed of a provincially significant swamp, as well as upland forest and open fields planted with pine and red oak. The swamp contains American elm, silver maple, red maple, witch hazel, white oak, black spruce, sensitive fern, ground cedar, skunk cabbage, ostrich fern, jewel weed, joe-pye weed, black currant, common spicebush, sedges and elderberry. Many mature trees on the site exceed 20 metres in height.

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The interest, efforts and commitment of local citizens have ensured that many wetlands remain in good condition or have received rehabilitation attention. The importance of local efforts in wetland conservation is at times undervalued. Supporting local groups ensures that projects are completed and that maintenance and monitoring are carried out. Training and assistance to develop the membership and skills of these groups are also important.

Ontario Nature Trust Alliance

The Ontario Nature Trust Alliance (ONTA) is a coalition of non-government conservation groups that share an interest in acquiring and managing natural lands. It was established in 1997, and currently has 20 member land trusts. It provides a forum and mechanism for land trusts to share expertise, experience and financial assistance.

Land trusts are non-government organizations that protect significant natural lands through ownership, legal restrictions, or informal agreements with private landowners. They represent a valuable and increasingly popular alternative for the management of protected lands. They will accept conservation easements, property and monetary donations, and may also raise funds to protect local priority sites. These groups ensure that protected lands are properly managed and provide a mechanism through which interested landowners can dedicate their lands for permanent protection.

ONTA maintains a Land Registry, which sets out principles for the care and recognition of protected natural areas. These principles include that: lands will be managed primarily for nature conservation, in which the natural processes of growth, succession and species interaction are generally permitted to proceed without interference, and; management of protected lands must consider their role as part of local landscapes and member groups will involve neighbours and the local community in site planning and activities.

ONTA also promotes government policies that support and extend the capability of land trusts, such as favorable income tax policies, relief from property taxes, and recognition of the role of conservation easements in municipal Official Plans.

Ontario Nature Trust Alliance - Member Groups

1. Lambton Wildlife Inc.
2. McIlwraith Field Naturalists of London
3. Long Point Basin Land Trust
4. Lower-Grand River Land Trust Foundation Inc.
5. Hamilton Naturalist's Club
6. Kitchener/ Waterloo Field Naturalists
7. Speed River Land Trust Association
8. Escarpment Biosphere Conservancy Inc.
9. Blue Mountain Watershed Trust
10. Thickson's Woods Heritage Foundation Inc.
11. Valleys 2000
12. Hastings - Prince Edward Trust
13. North Shore Stoney Lake Land Group Inc.
14. Canadian Thousand Islands Heritage Conservancy
15. Rideau Waterway Land Trust Inc.
16. Lake Clear Conservancy
17. Couchiching Conservancy
18. Muskoka Heritage Foundation
19. Georgian Bay Land Trust Foundation
20. Thunder Bay Field Naturalists

Province-Wide Member Groups:

Federation of Ontario Naturalists
The Nature Conservancy of Canada

An important new tool for wetlands protection within the context of the municipal land-use planning system in Ontario was published in 1999. The *Natural Heritage Reference Manual* provides specific guidance on how to implement the natural heritage policies, including the wetland protection policies in the *Provincial Policy Statement* under the *Planning Act*. The Manual also provides a recommended approach to the development of natural heritage systems, which addresses the need for an ecosystem-based and watershed-based approach to protecting wetlands and other natural heritage features and areas, such as woodlands and valleylands. The Manual is available from the Ontario Ministry of Natural Resources (see Contacts).

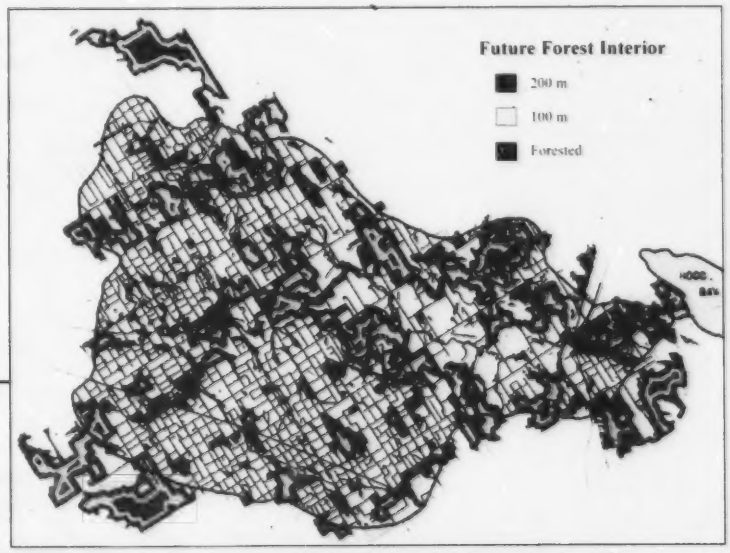
Protecting Rehabilitation Sites Through Official Plans

Beginning in 1996, Tay Township and the Severn Sound Remedial Action Plan team mapped forest cover, vegetation along streams, and wetlands in the Hogg Creek watershed (59 square kilometres). Using the approach described in *A Framework to Guide Habitat Rehabilitation in Great Lakes Areas of Concern* (see p. 7), priority rehabilitation sites were identified.

At the same time, the Township was preparing a natural heritage system and updating its Official Plan. A number of the priority rehabilitation sites were adjacent to areas already identified in the Official Plan, including valleylands, woodlands and groundwater discharge/recharge areas. Many of these areas have now been reforested through a tree planting program offered by the North Simcoe Private Land Stewardship Network.

The Township has now designated these newly rehabilitated habitats as Environmental Protection Priority One in the Official Plan, meaning that no development can take place. For development proposed within 120 metres of a site, an environmental impact statement must be prepared. The next step will be to identify the rehabilitated sites as Environmental Protection in the Township's comprehensive zoning bylaw.

As additional rehabilitation sites are reforested, they will be included in updates of the Township's planning documents. Hopefully as other habitats, including wetlands are rehabilitated, they too will be designated in the planning documents. By working together, Tay Township, the Severn Sound Remedial Action Plan team, and the Stewardship Network provide an excellent example of integrating Great Lakes habitat rehabilitation initiatives and municipal planning land-use protection policy.



Sample of Hogg Creek Watershed mapping

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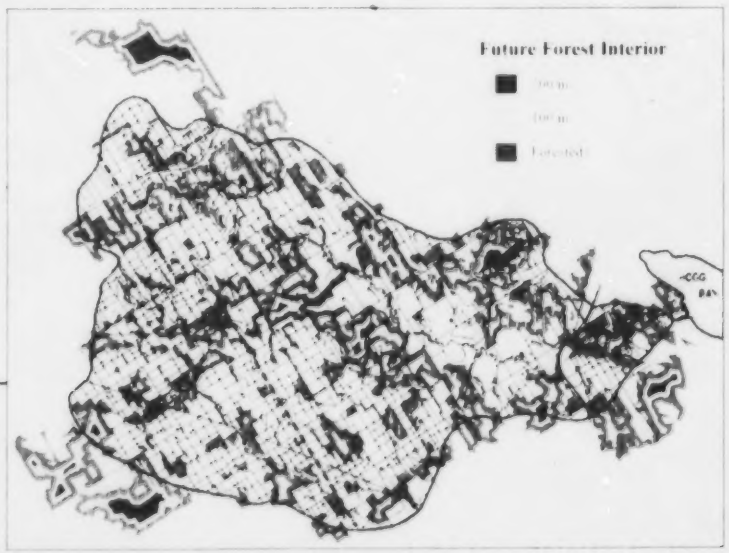


Sample of Hogg Creek Watershed mapping

Kingston Area Wetlands Working Group

The Kingston Area Wetlands Working Group is a coalition of government and non-government organizations committed to protecting and restoring wetland ecosystems in the Kingston area through public education, good stewardship and cooperative action. The group first met in 1995 following discussions between the Environmental Officer at Canadian Forces Base Kingston and Environment Canada (Canadian Wildlife Service) about working together to implement the Great Lakes Wetlands Conservation Action Plan. Following preliminary discussions around developing a rehabilitation strategy for the Butternut Creek Swamp Forest wetland on the Base, CWS contacted several interested agencies and non-government organizations in the Kingston area and a working group was formed. The group meets on an informal basis to share technical expertise for the benefit of Kingston area wetlands. Group members include: Kingston Field Naturalists, Ontario Ministry of Natural Resources, Ducks Unlimited Canada, Canadian Department of Heritage, Rideau National Historic Canal, Cataraqui Region Conservation Authority, Canadian Forces Base Kingston, South Frontenac Community Stewardship Council, and Environment Canada - Canadian Wildlife Service.

Several successful projects have been completed by the group, including:

- *the Butternut Creek Swamp Forest Wetland Management Plan - wetland function was improved through zoning areas of the swamp for protection, in addition to water level stabilization work;*
- *a wetland display, educational video and web site;*
- *a preliminary survey of Kingston area wetlands;*
- *the Little Cataraqui Creek Wetland Restoration and Monitoring Manual; and*
- *wetland rehabilitation work at the Frontenac Institution - livestock access was restricted and water level stabilization work was carried out.*

For more information contact the Kingston Area Wetlands Working Group (see Contacts) or visit *www.cciw.ca/green-lane/wildlife/conservation/wetland/kaw/intro.html.*

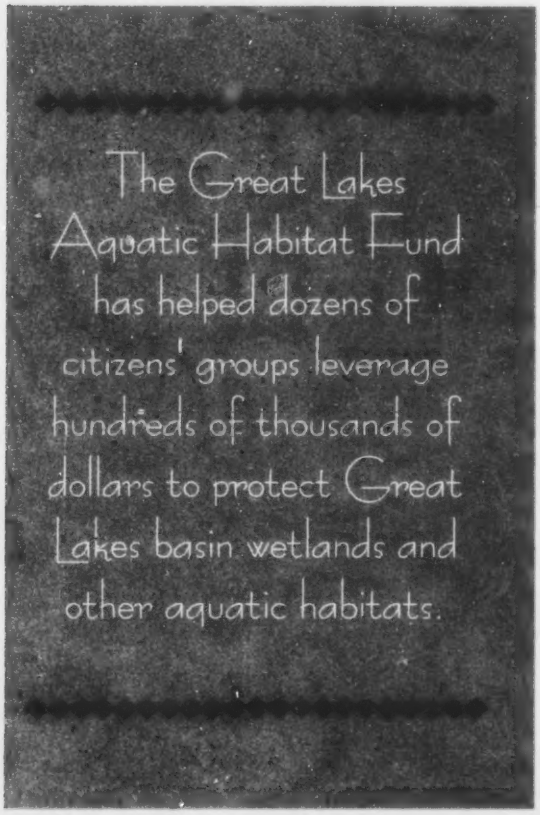
Great blue heron / B. Wesson

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community."
Aldo Leopold

Great Lakes Aquatic Habitat Fund

The Federation of Ontario Naturalists is the primary Ontario partner (Ontario's "hub") for the Great Lakes Aquatic Habitat Network and the Ontario coordinator for the Great Lakes Aquatic Habitat Fund, which is part of the Network's program. The fund, which will operate at least until the end of 2000 and likely beyond, disburses mini-grants of up to $3,500 U.S. each (as well as special opportunity grants of up to $500 U.S. for urgent needs that do not conform to the usual, twice-yearly application deadlines) to local grassroots groups for advocacy-related projects and community capacity-building work that will protect aquatic habitats within the Great Lakes basin. The Fund is coordinated by Michigan's Tip of the Mitt Watershed Council, with financial backing from the C.S. Mott Foundation.

Over the past four years, the Great Lakes Aquatic Habitat Fund has helped dozens of citizens' groups leverage hundreds of thousands of dollars in additional funds from other sources for their action-oriented projects to protect Great Lakes basin wetlands and other aquatic habitats. For instance, the Fund awarded $2,500 to the Save The Oak Ridges Moraine (STORM) Coalition to allow STORM to build a membership network and to increase outreach to affiliated groups and individuals. The aim is to increase STORM's capacity to educate a large general audience in the Greater Toronto Area and beyond about the importance of the Oak Ridges Moraine.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Information about the program and application forms for mini-grants are available from the Federation of Ontario Naturalists (see Contacts), or visit the Great Lakes Aquatic Habitat Network and Fund on-line at: *www.glhabitat.org*.

Protecting Nature Close to Home

The provincial policies under the 1996 *Planning Act* provide a renewed opportunity to reflect local community support for the conservation of natural areas in Official Plans and land-use planning. One of the ways a community can approach this is through an environmental advisory committee (EAC). An EAC provides a mechanism for a local municipal council to get community environmental input into its land-use planning activities. The EAC provides the council with a sounding board and a source of free, independent advice and expertise from the local community on the environmental aspects of land-use planning.

The Federation of Ontario Naturalists has published four community success stories where EACs have made a difference. These are contained in *Protecting Nature Close to Home* – A Guide to Municipal Environmental Advisory Committees in Ontario. The stories inlcude: Savannah Links Golf Course (Waterloo Region); Richmond Conservation Area (Goulbourn Township); Environmental Policies for the Official Plan (City of Windsor); and Roadside Naturalization Projects (Niagara Region).

When dealing with an issue that is as geographically, politically and ecologically complex as wetland conservation, it is essential to maintain communication with and encourage participation by a wide variety of government and non-government groups. The Action Plan called for a new way of doing business to ensure the input and active participation by both the public and private sectors.

The GLWCAP partners have participated in and contributed to information-sharing products and forums over and above those described in this document. These include consultative planning exercises, workshops, conferences, meetings, etc.

Announcing...

The Quebec 2000 Millennium Wetland Event will be the first major wetlands meeting of the millennium and will summarize knowledge from the full continuum of wetland science. This international event features a high-profile roster of some of the world's most respected research authorities and industry and environmental leaders. The technical program is being developed jointly among the Society of Wetland Scientists, INTECOL and the International Mire Conservation Group and will be closely coordinated with the International Peat Society and other groups, such as Wetlands International. The event will be held in Quebec City, from August 6 through 12, 2000.

Topics include: Wetlands and climate change; Wetland restoration concepts for the new millennium; Wetland biodiversity; Conservation and protection of species at risk in wetlands; and Conserving coastal wetlands in the Great Lakes basin. For additional information, including registration information, visit: *www.cqvb.qc.ca/wetland2000/english/* or contact the conference Secretariat (see Contacts).

Ontario Ministry of Natural Resources Provincial Wetlands Strategy

Approximately six per cent of the world's wetlands are found in Ontario. They are a critical component of healthy landscapes and an important element of the Ontario Ministry of Natural Resources' (OMNR) natural resources management programs. OMNR is currently developing a Provincial Wetlands Strategy to identify and address wetland-related issues and ensure a coordinated and cost-effective approach to wetland management in Ontario. The Strategy complements the GLWCAP as well as other OMNR wetland conservation programs and initiatives by: addressing all Ontario wetland habitats, providing an update on the state of wetland management in Ontario, and identifying actions to improve the effectiveness of wetland conservation efforts.

Bay of Quinte wetland / A. Margetson

M121

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Lakewide Management Plans

Development of Lakewide Management Plans (LaMPs) for each of the five Great Lakes was a commitment made in 1987 by the governments of Canada and the United States as part of the Great Lakes Water Quality Agreement. The binational plans embody a systematic and comprehensive ecosystem approach to restoring and protecting the waters in each of the lakes, and include public, private and government stakeholder input. The LaMPs are implemented through partnerships between the Canadian and U.S. federal governments, the Province of Ontario, and the eight Great Lakes states.

The Stage 1 Report of the Lake Ontario LaMP was completed in May, 1998. One of the Plan's five main objectives relates to habitat: "Lake Ontario offshore and nearshore zones and surrounding tributary, wetland, and upland habitats shall be of sufficient quality and quantity to support ecosystem objectives for the health, productivity, and distribution of plants and animals in and adjacent to Lake Ontario". A habitat status report is in preparation for Lake Ontario. Lake Erie's Status Report was released in June 1999 and Lake Superior's Stage 3 Chemicals Report in November 1999. Lake Superior's habitat report is expected in early 2000. Work continues on all three to identify and implement remedial actions and report on progress. A similar Lake Huron initiative is in its very early stages.

For more information visit *www.cciw.ca/glimr/program-LaMPs.html* or contact Lakewide Management Plans (see Contacts).

Long Point Wetlands Meeting

In order to share preliminary results of Great Lakes wetland research projects, particularly the components focused on the Long Point area, Environment Canada held a meeting with over 25 representatives of various interests and research. Participants included the Ontario Ministry of Natural Resources, Long Point Waterfowl and Wetlands Research Fund, University of Waterloo, Environment Canada (Canadian Wildlife Service), Fisheries and Oceans Canada, Bird Studies Canada and private wetland consultants. Projects presented for discussion included: Assessment of trends through time – monitoring for wetland change; Wetland vulnerability index to assess impacts of climate change and variability; Monitoring invasive plants in Long Point and Turkey Point – tracking phragmites; Using Remote Sensing to map wetlands on Long Point – CASI; Mapping wetland hydrology; and Fish Habitat Assessment at Long Point.

The discussion focused on methods, data sources and results, applications of the research and opportunities for collaboration. Plans are underway for a second meeting to provide an update and discuss work plans for 2000 to encourage further collaboration.

Big Creek NWA / CWS

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Big Creek NWA / CWS

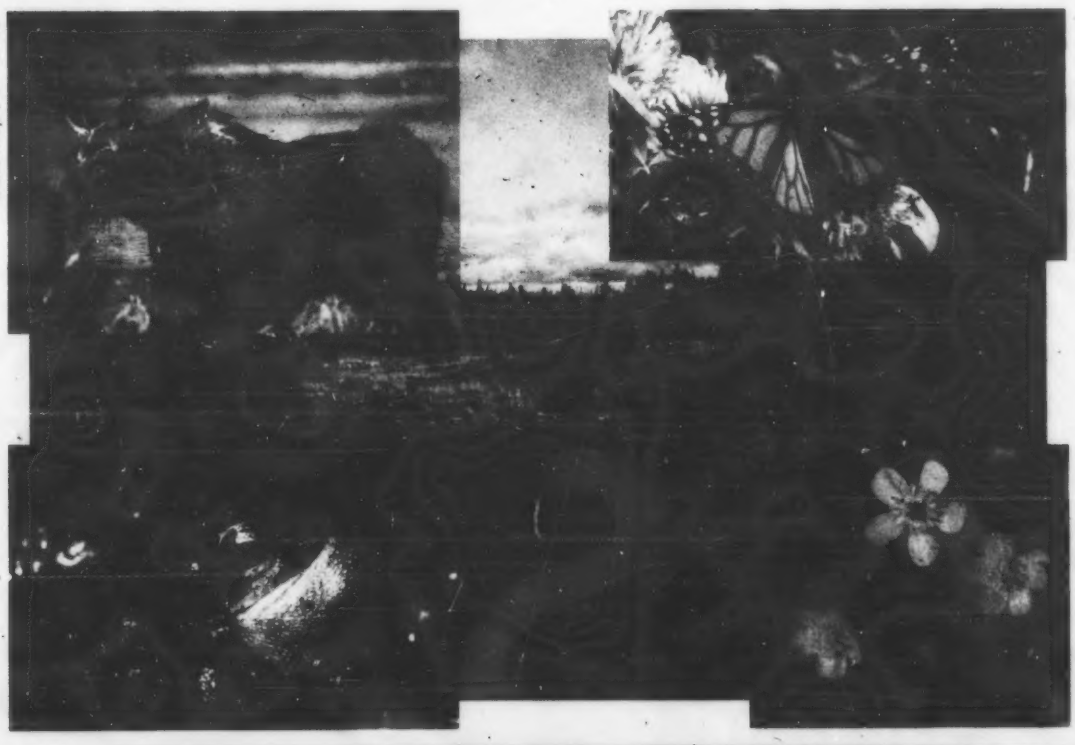
The discussion focused on methods, data sources and results, applications of the research and opportunities for collaboration. Plans are underway for a second meeting to provide an update and discuss work plans for 2000 to encourage further collaboration.

The Action Plan's implementation team remains pleased with overall progress under the first Plan. Many of the ambitious targets and milestones under each of the plan's strategies have been met or have seen substantial achievements. Although progress has not been equal across all strategies and some milestones have been deemed to be not valid, some excellent results and significant gains have been made. For example, by the end of March 2000, the GLWCAP will have met nearly 75 per cent of its wetland securement goal, based strictly on wetlands secured through acquisition. This is a significant achievement, especially in light of budget constraints and the opportunistic nature of acquisition. Progress toward each of the milestones set out under the plan's eight strategies is detailed on pages 4-6.

Since some wetland issues are beyond the control of implementation team members, achievements have been slower under certain strategies and milestones. For instance a large proportion of the milestones under the *Strengthen legislation, policies, agreements and compliance* strategy have been deemed not valid, or have not progressed and are being considered for the next Action Plan.

The commitment of a number of agencies to the GLWCAP can be seen through its many achievements; however, there are still some tremendous opportunities to build stronger partnerships and encourage additional partnerships through development of the next Action Plan. It is hoped that the passage of time and complementary strategic planning exercises will assist efforts to consult with these agencies in the development of the next Action Plan and renew the enthusiasm and commitment of these partners to Great Lakes wetlands conservation and the Action Plan.

Over the coming months, those milestones which remain valid will be identified and brought forward into the next Action Plan, others will be left behind as new milestones and emerging issues are developed.



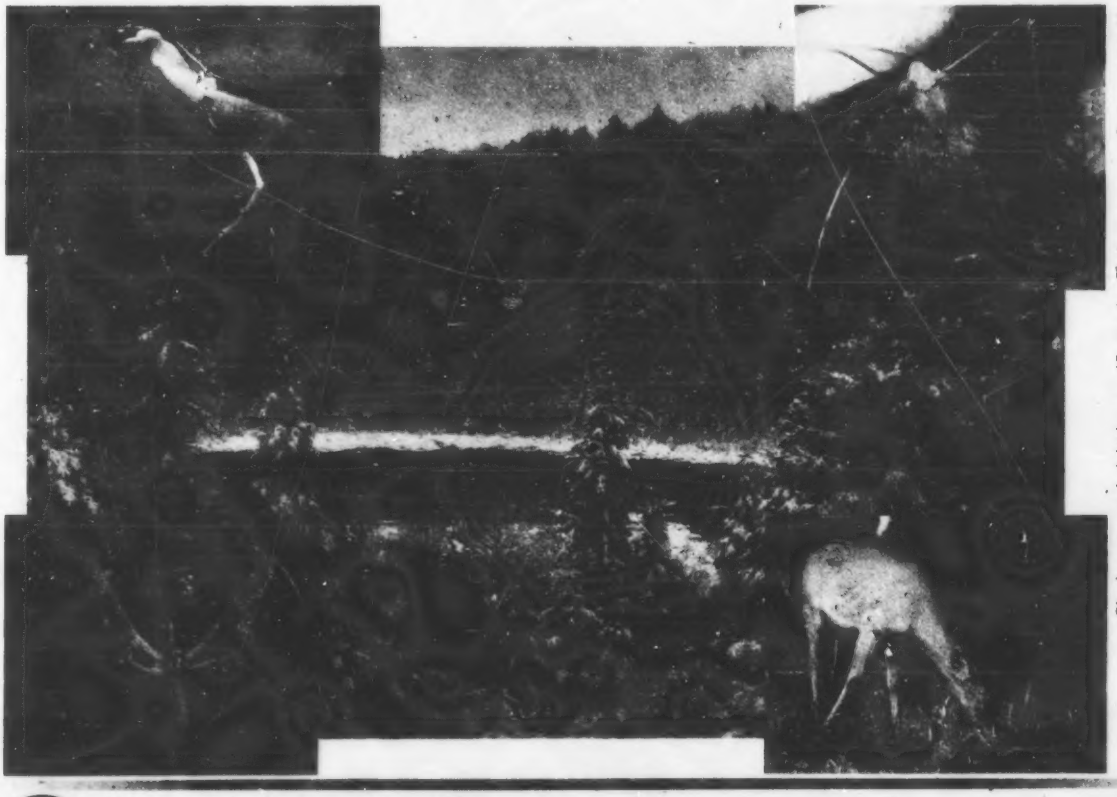
Moose - Monarch butterfly - American toad - Wolf Howl Pond / J. Mitchell Buttercup / D. Forder

Future Directions - The Next Action Plan

A cooperative, consultative approach is planned for the development of the next plan. Development of a second Action Plan is particularly timely given the strategic planning occurring within the GLWCAP's partner agencies. Through coordination, these planning efforts will result in complementary plans to address every aspect of wetlands conservation in the Great Lakes basin. As mentioned in Strategy 7, OMNR is developing a Provincial Wetlands Strategy. Ducks Unlimited Canada is creating a new vision for itself to complement the new Vision of the North American Waterfowl Management Plan. In addition, the Great Lakes 2000 Cleanup Fund is being reconfigured as a sustainability fund under the new federal Great Lakes Basin 2020 Program. Each of these existing partners along with others will be involved in creation of a new and revitalized Action Plan.

There have been many developments in wetlands conservation since the Action Plan was first launched in 1994. These make some existing milestones redundant and bring new priority to others which were not even considered in the first plan. Though the next Action Plan will likely keep many of its core strategies, such as wetland securement, it is expected that there will be a greater focus on emerging issues. In particular, these issues may include climate variability and change and species at risk. It is also hoped that it will be possible to incorporate more binational components into the new plan, by working with our American colleagues to expand components of the plan to include both sides of the Great Lakes basin.

There is an opportunity for new individuals, groups and agencies to embrace the GLWCAP and help achieve the wetlands conservation vision for the Great Lakes in the new millennium. Through the consultative approach adopted for the development of the next Action Plan, a shared vision complementary to each partner's mandate, should emerge. By continuing to share the workload and focus on the strengths, interests and resources of each partner, an implementable work plan will be developed. It is hoped that existing partners as well as new ones will see a role for themselves in the coordination and delivery of wetlands conservation efforts in the Great Lakes basin.



Black crowned night heron / B. Morin; Spring peeper - Beaver pond in winter - White tailed deer / J. Mitchell; Sundew / J.Daly

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web site: www.watershedreportcard.org

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Please tell us what you think!

If you would like to convey your comments on the Action Plan, get in touch with us at:

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Birdwatching / P. Ewins

Our Partners

Implementation Team Partners

- Environment Canada - Canadian Wildlife Service
- Federation of Ontario Naturalists and its member organizations
- Ontario Ministry of Natural Resources
- The Nature Conservancy of Canada

Other Partners in Implementation and Delivery

- Conservation Authorities
- Ducks Unlimited Canada
- Great Lakes 2000 Cleanup Fund
- Ontario Eastern Habitat Joint Venture
- Ontario Ministry of Agriculture, Food and Rural Affairs
- Remedial Action Plan Committees
- Waterfront Regeneration Trust
- Wildlife Habitat Canada

Partners in Development of the Great Lakes Wetlands Conservation Action Plan

Many committed and motivated private individuals as well as representatives from:

- Agriculture and Agri-Food Canada
- Association of Municipalities of Ontario
- Canadian Environmental Law Association
- Centre for the Great Lakes
- Citizens Environment Alliance
- Ducks Unlimited Canada
- Environment Canada
- Federation of Ontario Naturalists
- Fisheries and Oceans Canada
- Great Lakes United
- Long Point Waterfowl and Wetlands Research Fund
- Natural Heritage League
- NIMBY
- North American Wetlands Conservation Council
- Ontario Eastern Habitat Joint Venture
- Ontario Federation of Anglers and Hunters
- Ontario Ministry of Agriculture, Food and Rural Affairs
- Ontario Ministry of the Environment
- Ontario Ministry of Municipal Affairs
- Ontario Ministry of Natural Resources
- Soil and Water Conservation Society
- The Nature Conservancy of Canada
- Wye Marsh Wildlife Centre